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CONTENTS.

ORIGINAL COMMUNICATIONS:

ON THE TREATMENT OF DIPHTHERIA BY LARGE DOSES OF CALOMEL. By M. C. REITER, M.D. 145

A MACHINE FOR PREPARING PLASTER BANDAGE. By W. G. WEAVER 147

A CASE OF POISONING BY SMALL DOSES OF GELSEMIUM. By WHARTON SINKLER, M.D. 150

ON DIALYZED IRON AS AN ANTIDOTE IN ARSENICAL POISONING. By RICHARD V. MATTISON, PH.G. 151

NOTES OF HOSPITAL PRACTICE:

MEDICAL DEPARTMENT OF THE UNIVERSITY OF NEW YORK—Clinic of ALFRED L. LOOMIS, M.D.: A Complicated Cardiac Case 159

TRANSLATIONS:

Relation of Erythema Nodosum to Tubercul[illegible]—The Use of Lactate of Sodium for Hypnotic Purposes—Metrorrhagia treated by Ergotin administered Subcutaneously—Production of Albuminuria by Salicylic Acid—Action of Quinine on the Nervous System—Diarrhœa treated by Oxide of Zinc—Epileptic Seizures induced by a Polypus of the Larynx—The Excretion of Mercury during its Use as a Medicine—Obstinate Vomiting during Pregnancy greatly relieved by Dilatation of the Cervix—Pulmonary Tuberculosis in Hysterical Subjects—Purpura following the Use of Iodide of Potassium—Bismuth in the Treatment of Prolapse of the Rectum and Hemorrhoids—Citric Acid in Diphtheria—Cauterization in Fistula Ani 161–168

EDITORIAL:

OUR POVERTY 159

PONGO 163

PROCEEDINGS OF SOCIETIES:

PATHOLOGICAL SOCIETY OF PHILADELPHIA: Fatty Heart, with Polypus of Right Auricle—Abscesses of the Liver—Cystic Tumor in the Axilla 164–166

REVIEWS AND BOOK NOTICES:

A Compend of Diagnosis in Pathological Anatomy, with Directions for making Post-Mortem Examinations. By Dr. Johannes Orth. Translated by F. C. Shattuck, M.D., and G. K. Sabine, M.D. Revised by R. H. Fitz, M.D. 166

GLEANINGS FROM EXCHANGES:

Hydrophobia—Total Absence—Aspiration in Abscess of the Liver 166, 167

MISCELLANY:

Physiological Laboratory at Berlin—Fatal Explosion whilst Making Oxygen—etc. 167, 168

NOTES AND QUERIES:

Organic Phosphorus Compounds. By C. G. Polk, M.D. 169

ARMY NEWS:

Official Changes from December 18 to December 24, 1877 169

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PHILADELPHIA, JANUARY 5, 1878.

ORIGINAL COMMUNICATIONS.

ON THE TREATMENT OF DIPHTHERIA BY LARGE DOSES OF CALOMEL.

BY M. C. REITER, M.D.

A VERY considerable number of the younger physicians of Pittsburg having formed themselves into a club for mutual improvement, under the title of "The Academy of Medical Science," they took up the subject of Diphtheria for discussion at their last regular meeting.

Being known to differ *in toto cælo* as to its nature and treatment from my confrères, I was kindly invited by a good friend and member, Dr. James McCann, to be present at that meeting.

A paper was read by Dr. Smith on this disease, in which he adopted the popular and prevailing opinion as to etiology and treatment. When he had done, I was invited to address the society, and did it; but so disconnectedly and lamely that I feel constrained to arrange my views in order, so that my position may be clearly defined and substantially stated.

In the epidemic of diphtheria of 1863, it was my misfortune to have my first severe case in the person of my grandchild and namesake, a boy of two and a half years. The mischief fixed itself on the Schneiderian membrane of both nostrils, reaching into the pharynx. Inside of forty-eight hours, the common treatment then in vogue being followed, the entire surface became gangrenous. The glands in the neck became enormously swollen, and the poor boy died "none too soon." In watching this case, I became convinced that the disease is not a *poison* of the blood or in the blood, but an excess of *fibrin*, called, in old times, the inflammatory diathesis.

The glandular swellings are not diphtheria, but a sequence, the fibrin having not only transuded but mechanically closed the capillaries; gangrene or else a slough ensues; and these glands are poisoned, as other glands are, from a virus conveyed to them by the lymphatics in the structure; as fatally killed and lifeless as a crushed hand or foot over which the wheels of a railroad-train have passed.

I have never yet seen glandular enlargement usher in an attack of diphtheria. On the contrary, the transudation has changed from a clear white to a dirty gray, a portion has been thrown off with the epithelium, and some underlying tissue has putrefied, before adenitis manifested itself.

Many years ago—I am now a physician of many years' active professional life—I became dissatisfied with the old combinations of nitrat. potass., calomel, and ipecac in treating the inflammatory diseases incident to the mountain region in which my lot was cast, and, after bleeding and cupping, had trusted to large doses of calomel alone, with either liq. ammonii acetatis or potassii bicarb. in interval.

The readiness with which patients take this tasteless stuff called calomel, and the satisfactory results from its administration, have, year by year, moulded me into a calomel doctor. The sad, melancholy, and heart-rending scene of "Willie Winkie's" last hours made me *vow* I would give calomel largely to my next diphtheritic patient.

The cases reported need no comment; they are accurately given; but the *modus operandi* of calomel, for which I had conjured up a hypothesis, is now clearly demonstrated in the invaluable work of that profound and industrious physician of London, Dr. Murchison. His teaching is not only making the pathway to success more plain and clear to the faithful and earnest student in the art of healing, but he is casting a grand halo of glory on his profession. His last work, "Functional Diseases of the Liver," *has solved every obscurity in understanding* how calomel cures diphtheria. I would say to every young physician embarked in the perilous enterprise of fighting disease, *Read this book*, STUDY THIS BOOK, ponder its doctrines, and pray Almighty God, the source of all light, truth, and power, to enable you so to appreciate its teaching that you may go forth to your fearful, solemn, and responsible work at the bedsides of the suffering, armed with the panoply of truth, and with a bold and fearless heart.

Those who oppose the doctrine and resist my conclusion may say, "Have you never given quinine, iron, stimulants, beef-tea, etc., in diphtheria?" I say, emphatically, "*No.*" I have relieved patients suffering from the sequelæ with this plan of treatment, as I have treated sucressfully

nephritis or phrenitis following scarlatina with venesection and other antiphlogistic remedies.

One case reported, No. IV., followed No. III., and the subject was the servant-girl in the family. Her throat was intensely red, without any tumefaction. A spot of exudation, very thin, was on the right tonsil; but the history of the case shows she had hot skin, a small, frequent, quick, and hard pulse, and complained of distressing pain in occiput and down the spine. I feared the force of disease was tending to the meninges of cerebellum and cord, and, confident in my sthenic conception of diphtheria, I bled her to syncope, and gave calomel as narrated. On the fifth day of convalescence I was sent for to treat acute rheumatism of the right wrist, which yielded to acetate of ammonia, tr. rad. aconiti, and colchicum vin. (British), together with a dose of pil. mass. hydrarg. cum comp. extract. colocynth. in thirty-six hours.

To all who will try this plan I would only say, give calomel freely and boldly every hour until the intestinal discharges resemble the fresh-water polyps in water-troughs, gelatinous, and of a bright dark-green hue; then your patient is safe; and, if you fear salivation, administer a dose of castor oil. I have never seen ptyalism in a single case, and seldom give any laxative. The calomel purges, but not excessively, even in children of three or four years who have taken a half-ounce. Should prostration follow these heavy doses, you can rely on the fact that you have been mistaken in your diagnosis, and pronounced a case of follicular tonsillitis diphtheria, and can quit your remedy without any serious results. Cases I., II., and IV. show this fact clearly.

I insist on giving calomel in ice-water in summer, and cold water in winter. Fill a teaspoon half full of water, and drop the powder in it; get the patient to open the mouth, and tumble it in; then wash down with fresh water.

Calomel should be given in its purity.

The hypothesis which I had adopted for years was as follows. The functions of the abdominal organs in inflammatory diseases were suspended for want of an influx of the *vis vitæ*, which was largely eliminated by the breaking down of tissue, which is rapidly destroyed in disease. The resulting compounds which should be thrown off by the liver, kidneys, and intestinal mucous surface were retained in circulation, and *then* became poisonous blood-elements, fearfully increasing the danger of the sufferer. I supposed each particle of calomel to exercise the power of the point of a needle on the electric fluid, and attracting vital force to restore functional activity.

This may be called a mysterious hypothesis. To the student of natural science profound mystery attends every step of his progress. Catalysis is certain, but very mysterious. Optics demonstrates that we never see anything, but discern an image on the retina of our eyes. No study is so awfully mysterious and strangely perplexing as the minute anatomy of the ear. What was it sat in the cochlear and semicircular canals in Mozart's and Beethoven's ears, and interpreted the impressions made by the aqua Cotunnii on the gossamer threads of the auditory nerves, woven into a film and suspended there? Science leads to mystery deep, unfathomable, and awful. I knew an old veterinary surgeon for many years, and have seen him cure relaxed and distended capillaries in the conjunctivæ of horses' eyes, remaining after the reduction of acute conjunctivitis, in a few hours, by blowing calomel under the lid from the cylinder of a goose-quill.

Calomel should be given in large doses, and repeated every hour until the bile in the defections assumes the appearance described. Then you are done with it, and run no risk of ptyalism. When given at long intervals you do not secure free and frequent evacuations, and it may have had the specific effect you desire long before you can discern it. A liver relieved and acting healthfully and vigorously, portal veins readily emptying their contents into this organ, may be attended by lively action of the lacteals, which would convey calomel into the blood.

I permit my patients to take cold water and lemonade *ad libitum*, and insist on their drinking frequently mucilaginous fluids. I prefer barley gruel, but give gum-arabic water, flaxseed tea, and slippery-elm water, and nothing else,—*no food whatever.* During convalescence in the feeble I give small doses of quinia. With the calomel I give every third hour chlorate of potash. It has never done injury, but I doubt if it is needful.

The metamorphoses which are brought about by and in the liver, as shown by that excellent compilation of experiments and their results, published by Dr. Murchison,

make it very easy to understand how a liver, to-day ceasing to destroy fibrin, may in a few days hence permit the blood to be surcharged with lithic acid, as happened in Case IV.

I have notes of many cases recorded, but have only transcribed as many as I thought needed to explain my hypothesis.

Case I.—September 23, 1863, 11 A.M., was called in consultation with Dr. Robinson to see the daughter of Mr. Beatty, aged 3 years, who became ill the day before. She was a beautiful child, fair hair and blue eyes, with good organization. Countenance was distressed; almost perfect aphonia; respiration slightly stridulous; pulse small, hard, quick, and frequent; the whole fauces of a bright red, and covered with slight patches of exudation. The doctor had given a very unfavorable prognosis (had only seen her a few hours previous to my visit), in which I concurred, as the mischief had fixed itself mainly in the larynx. His treatment was five grains of potass. chlorat. in solution every third hour, and pencilling throat with solution of nitrat. argenti in glycerin. I prevailed on the doctor to continue his treatment, and give ten grains of calomel in a little ice-water, and repeat five grains every hour until we should meet again the next morning. Diet: cold water, lemonade, and barley gruel.

September 24, 10 A.M.—Met the doctor, and found our patient very much improved; voice almost restored: had two dejections; continued treatment.

September 25, 10 A.M.—Patient cheerful and bright; voice restored; pulse soft and natural; no prostration; respiration normal. Continue calomel every third hour until stools appear like polyps in water troughs. Add syrup senegæ to potass. chlorat. solution to relieve cough.

September 26, 10 A.M.—Patient took castor oil at night, when stools manifested characteristic mercurial action. Had taken four drachms calomel, and no prostration. Is now a vigorous young lady.

Case II.—July 24, 1865, 11 A.M., was hurriedly called to see a child of John Eicher. I could not go,—was an invalid, and had been already overworked,—but got Dr. James McCann to visit it, and promised to see it myself in the afternoon. Dr. McCann reported that the father, who went out with him, said they had buried an elder child one week before from diphtheria, and that the babe (eight months old) was now suffering from the same disease, and the attending physician pronounced the case hopeless. The child was well formed and nourished; pulse small, tense, and so frequent I could not count it; respirations frequent, difficult, attended by croupal noise; and at intervals there was a short, hoarse, expulsive, breaking cough. The skin was damp, face pallid and rather bluish in hue; the countenance had a worn, exhausted expression, and the eyes dull. The fauces had a glossy-red appearance, and the left tonsil had a diphtheritic film. Ordered three grains calomel every hour; potass. chlorat., ℥i; aquæ destillat., ℥iii. M. A teaspoonful every three hours, and throat to be pencilled with nitrat. argenti, ℈i; glycerin, ℥i; barley gruel or gum water and ice water *ad libitum*. When I proposed to Dr. McCann, in the afternoon, to visit this child, he protested; told me I had better spare my strength and visit hopeful cases. I told him I had promised, and would go. Found the case as hopeless as the doctor had depicted it, and had no expectation it could recover. Doubled the calomel powders and gave six grains every hour. Continued other treatment. I found the spoon daubed with calomel; ordered another, and showed them how to give the powder. And this is important. A spoon half full of water, powder dropped in the water, and then *tumbled* into the open mouth. Then give a drink of water to wash it down. In this way it escapes the lips and teeth, and the whole dose is swallowed. It does not touch the spoon, and therefore cannot adhere to it.

July 25, 8 A.M.—Patient much improved; eyes bright; countenance calm, except when it coughs; then expresses pain. Cough still croupal; respiration slower, fuller, and freer, and some mucus in trachea when it coughs; pulse 130, fuller and softer; bowels have moved twice; dejections exceedingly offensive and black; throat not so red, and exudation passing away from left tonsil.

5 P.M.—Patient doing well. Two dejections since morning; dark green and oily; not offensive; think fetor in first was owing to putrefied caseine. Give three grains instead of six grains of calomel every hour. Up to this time this infant of eight months had taken one hundred and sixty grains of calomel.

July 26, 9 A.M.—Improvement very marked. Child inclined to be playful. Slept well all night; had to be waked to administer medicine. Respiration almost normal; pulse 110; skin natural; cough still troublesome. Bowels moved three times; dejections watery and very green. Fauces very much better. Give calomel every fourth hour, and potass. chlorat. in interval. Give beef broth, without fat.

July 27, 9 A.M.—Improvement manifest. Respiration perfectly free, but cough somewhat annoying, yet not frequent. Bowels moved three times,—a dark clear green, consisting of gelatinous masses. Omit calomel, and give ol. ricini, ℥ij. Continue potass. chlorat. every four hours, and give gtt. xv, in interval, of syrup. polygalæ senegæ

July 28. Cough better; patient doing well. Continue treatment.

July 29 and 30.—Convalescence progressing happily.

This child was brought to the office about

the third week of October, and an abscess was opened at the angle of the left jaw, which discharged laudable pus and soon healed. Dr. McCann reported this case at the time, and I have considerably cut his report, but cannot avoid quoting his remarks on it in full:

"In this case, a babe eight months old, which appeared moribund on first and second visits, took at the rate of $3\frac{87}{60}$ grains of calomel every hour for sixty-eight hours, and instead of exhaustion the load was rolled off the vital organism, and it steadily attained its power and force of healthy vitality. In this case, as indeed in all the other cases we have noted, there was never a sign of mercurialism, no ptyalism, no ulceration of the mouth or throat, and, judging by the *physique* of the child when last seen, no injury had resulted to its organism from mercury or disease. Thus the bugbear of the injurious effects of mercury on the system may be laughed at as utterly ridiculous."

Case III.—Thursday, September 13, 1877, 9 A.M.—Saw a female child of J. Yarnells, aged 5 years,—a family in which I have been the sole physician for twelve years. Found the child feeble, with hot skin, frequent but feeble pulse, complaining of great soreness in throat; no glandular enlargement. On inspecting fauces, saw the tonsils thickly covered with a white exudation, which extended over palate, velum palati, and pharynx. The tonsils had the appearance of two small hard-boiled eggs with shell removed. On inquiry, learned the patient had been ill since Monday. Gave a fatal prognosis, and prescribed tonics, stimulants, etc., to support against gangrene of fauces, which I felt certain would occur. On visiting her in the evening, found parents much rejoiced at apparent improvement. Some portions of exudation had come away, one-fifth inch in thickness. Dr. McCann was with me, and I had intended to experiment with bichloride of mercury; but the doctor wisely admonished me not to change treatment in a case which, to an enlightened medical observer, must inevitably prove fatal, when the parents believed the patient improving on the remedies administered.

On the following morning, September 14, the patient was moribund, glands of neck immensely swollen, breath had a gangrenous fetor, extremities cold, pulse could not be counted, and she died at noon.

Case IV.—At ten o'clock on Tuesday, October 2, 1877, was called to see the housemaid in same family, aged 17 years, and of a vigorous organization; had but lately come from England. Had felt unwell for several days, but had worked until the afternoon, when she told the lady she could not work any more, but must go to bed. Found her with flushed face, hot skin, anxious countenance; complains of soreness in throat and severe pain in head, especially in occiput, extending down spine. Has aphonia; can only speak in whisper; pulse small, tense, quick, and 136 in minute. Tongue furred; throat of an intense glossy red, and a thin patch of diphtheritic exudation on right tonsil; pain from this tonsil extends into right ear.

Bled her to syncope (twenty-four ounces), gave twenty-five grains of calomel, and in an hour twenty more, then ten grains every hour; if she complains of weakness, extend to three hours. Give ten grains of potass. chlorat. in solution every third hour, and nothing to be taken but lemon water, cold water, and barley gruel.

October 3, 10 A.M.—Pulse 100, fuller, and softer; slept so comfortably since 4 A.M. that powders were given only every third hour. Bowels moved but once, although two drachms of calomel have been taken, and there is no prostration. Feels much better; very slight pain in head, voice improved, and film leaving right tonsil, but face is still too red. Continue treatment; if bowels are not moved at noon, give a teaspoonful of magnes. sulphat. in a cup of cold water. Eight P.M., condition comfortable; pulse 90; face paler; bowels moved once since she took the salts. Continue treatment.

Thursday, October 4, 10 A.M.—Had a good night; pulse small, quick, and frequent,—a mercurial pulse I call it. Bowels had moved thrice, but the discharge, in color and consistence, did not warrant the omission of calomel. Continue treatment; touch right tonsil with solution of nit. argenti in glycerin, ℥j to ℥ss. The exudation has passed off, and epithelium with it. Ordered the stools to be carefully observed, and if the bile floats in dark, bright-green gelatinous masses, abandon calomel and give ol. ricini, ℥iss.

Was sent for to visit patient at 9 P.M. Messenger said that patient had been unable to swallow anything since 5 P.M. When I saw patient, found her and friends much alarmed, but she had comfortable skin, pulse, etc. Suspected the diphtheritic inflammation had reached upper portion of œsophagus and loss of epithelium had induced spasmodic constriction of circular fibres,—the same condition I had once combated in an old lady who had swallowed her tea too hot. Called for a cup of warm gruel, and urged the patient to fill her mouth and make a strenuous effort to swallow it. She succeeded so well that the contents of the cup were soon transferred to her stomach. This difficulty of deglutition passed away in two days. Finding in dejections characteristic bile, omitted calomel and ordered ol. ricini, ℥iss. Continue potass. chlorat. and touch tonsil, then pass brush into œsophagus.

October 5, 10 A.M.—Patient comfortable; all symptoms favorable; only complains of something in throat annoying her like a foreign body, but not painful. On inspection, saw that the uvula was about the size and

shape of a marble and had the appearance of a vesicle of water. Ordered it to be brushed frequently with a large camel's-hair pencil moistened with red-pepper tea. May take beef broth.

Saturday, 6th, 9 A.M.—Patient quite well; palate nearly normal in appearance and size. Ordered one and a quarter grains, thrice daily, chlorat. potass. to be continued.

Sunday, 11 A.M.—Patient had some pain in wrist and shoulder of right side during night. Room has no fireplace, and nights are cool and weather damp. Prescribed blue mass, ℈ss, and comp. ext. colocynth., ℈ss, to be mixed and divided into four pills, to be taken at once. A half ounce spts. Mindereri, ten drops of wine of root of colchicum (British), and four drops of tinct. rad. aconiti, to be taken every three hours, and painful parts to be painted with Churchill's tinct. iodine.

Monday, October 8.—Patient to resume quinine. Rheumatism all gone; take Mindereri mixture thrice daily. In a week from this she went to her parents' home (thirty miles by railroad), and has been well ever since.

PITTSBURG, December, 1877.

A MACHINE FOR PREPARING PLASTER BANDAGE.

BY W. G. WEAVER.

I DO not propose to enter into a discussion of the merits of the plaster-of-Paris bandage. Its adaptability as a fixed dressing in fractures, caries of the vertebræ, etc., has not only been demonstrated by its author (Sayre), but also by Prof. Agnew, who has used it extensively, and by many other surgeons, who give it the first rank among surgical applications for the above conditions of injury and disease.

The objection which I have heard urged against it is, that it is so tedious and disagreeable a process to prepare the bandage for use,—to cut the bandage first (for the crinoline will not tear), and, secondly, to rub the plaster into the meshes of the crinoline. Any one who has used the dressing very frequently must admit the force of this argument.

Realizing very strongly this objection to an otherwise almost perfect splint, and having quite frequently the necessity upon me to prepare the bandage, I several months ago, while resident physician in Wilkesbarre City Hospital, set about a plan for obviating this objection to the dressing, and of discovering a speedy mode of manufacturing the bandage when needed.

The machine which I had constructed for the purpose, and which has given perfect satisfaction both in and out of the hospital, I have concluded, at the solicitation of those who have examined and pronounced upon its merits, to describe for the columns of the *Medical Times*.

It consists of two uprights two feet high; a base twenty inches long. The uprights are five inches apart on the inside. There are four rollers, two of which are seven-eighths of an inch and the other two one and a quarter inches in diameter, and four and seven-eighths inches long on the inside, so as to permit their revolving without friction. The upper one is placed four inches from the top, the periphery reaching one-eighth of an inch over the median line, while the second one is placed just below it, with its circumference just touching the median line of upright.

Eight inches from the top is an iron frame, five by four inches, in which rests a tin hopper of the same dimensions at the top, but three inches by one-sixteenth of an inch at the bottom. The hopper is five inches deep. Two inches below the bottom of the hopper is the circumference of another roller, the periphery of which rests one-eighth of an inch over the median line. Just below this, and to the left, so that the right circumference just touches the median line, is another roller. Three inches below the circumference of the lower roller is an iron crank passing from upright to upright. On the base-board rests a tin box twelve inches long, five inches wide, and two and a half inches high. This has a tightly-fitting lid, which slides in a groove, so as to render it *air-tight* when closed. In this box the plaster is kept when the machine is not in use.

In preparing the bandage the crinoline is cut (by an instrument yet to be described) into slips of the proper length and width; the initial end is placed through the rollers at the top, drawn down the median line through the hopper, on through the second set of rollers, and then fastened to the crank. The air-tight box at the bottom, in which the plaster is kept, is now opened, the hopper is filled, and the bandage is rapidly wound.

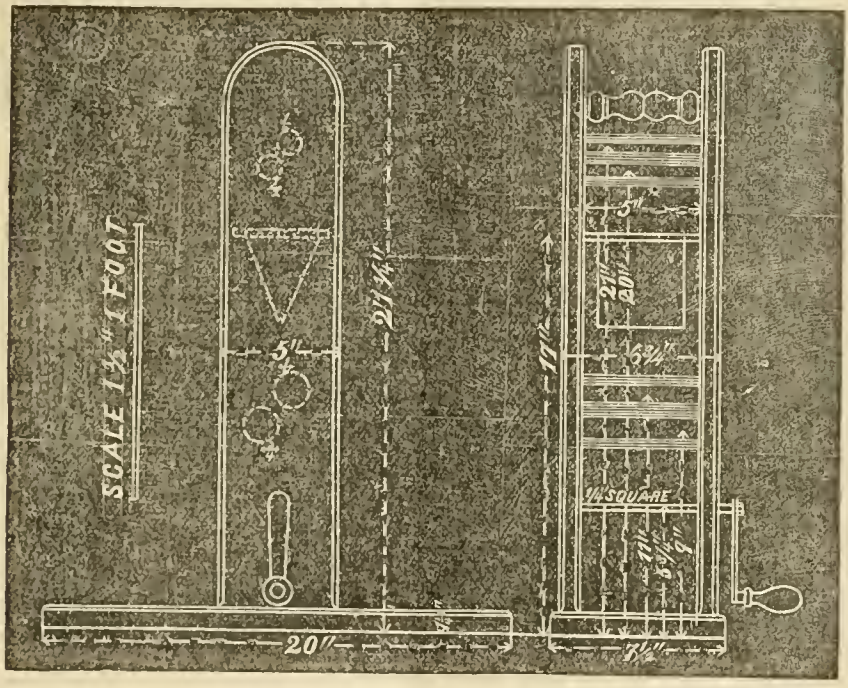
It will be seen that the first rollers tend to keep the bandage smooth and stretched, the bandage is saturated by the plaster in

its passage through the hopper, and the second set of rollers gather in what plaster has fallen from the bandage and through the hopper, by means of which the bandage is completely filled and packed with the plaster.

The crank is now removed, and the bandage is ready for immersion into *cold* water and immediate application to the fractured part. Nothing could be simpler, nor could anything more perfectly accomplish the object.

When it is desired to use the machine it I have been able, without the slightest difficulty, invariably to remove the splint by merely *unwinding* it.

The material which I have used in the construction of this apparatus is black walnut. It can be made up, with all the appurtenances which I have named, for less than five dollars; and probably few instruments known to the surgeon will give more satisfaction than this, as it enables him to prepare in a rapid manner the most useful and perfect fixed dressing ever brought to the notice of the profession.



for rolling the common bandage, the hopper can be removed by partly revolving it, when it can be lifted out. It is made thus so that it can be lifted out without being unnecessarily far from the upper rollers.

As the crinoline will not tear, it is a tedious process to cut it for use. To obviate this objection I have constructed a knife which is placed on the top of the machine. The knife contains a slide which regulates the width of the bandage. It can be accurately and rapidly cut by merely pulling the crinoline through the slide.

It has been taught that in removing the plaster splint it is necessary to cut it with sci-sors. This I have found to be a mistake. By applying *warm* water freely to

A CASE OF POISONING BY SMALL DOSES OF GELSEMIUM.

BY WHARTON SINKLER, M.D.

AT the present time, when gelsemium is so much used in the treatment of neuralgia and other nervous disorders, I think the report of the following case, in which a very small dose of the drug caused toxic symptoms, will be of interest:

Mrs. T., æt. 49, has suffered from neuralgia of the fifth nerve on the right side for the past three years. The pain has lasted during the fall and winter months with great severity, but she has been free from it during the summer. I was called to see her on November 13, 1877, and found her suffering acutely from the pain in her face. It had begun about

three weeks previously, and since then the paroxysms had been almost constant, preventing sleep or rest. The pain was marked in the inferior dental and infra-orbital branches of the fifth. The patient was unable to open her mouth, on account of its bringing on a paroxysm, and she had been unable for several days to take any nourishment except in liquid form. Her general health was good, and her appearance indicated good nutrition.

I ordered fluid extract of gelsemium; five drops, three times a day. I saw the patient about ten days later, and she said that the pain was no less, that the medicine had caused dimness of vision after each dose, but no other symptom. She was directed to continue to take the gelsemium, and to take in addition five grains of sulphate of cinchonidia three times a day.

Two days later I was called to see her, the messenger saying that she was "very ill, and sinking." I found the patient lying on a sofa, unable to sit up or to move at all. The extremities were cold, the pulse small and feeble, respirations sighing and jerky, pupils dilated, and the eyes suffused. There was paralysis of the bladder, the urine dribbling away constantly, and although there was general muscular enfeeblement it was most marked on the right side, in the arm and leg. The family said that the symptoms first appeared the day previous, but only to a slight degree, but they had become rapidly worse since morning. She had taken the gelsemium three times the day before and once that morning. They were sure that not more than five drops had been given at a dose. I at once ordered potassii bromid., gr. xv, and morphiæ sulph. $\frac{1}{2}$ gr., every two hours, and of course a discontinuance of the other medicines.

In a few hours the patient was much relieved, and the next day was able to sit up and walk about the room.

I now found on close inquiry that from the first dose of gelsemium it had produced loss of power in the bladder for an hour or two after each dose. There was frequent desire to urinate, but inability to hold the water.

I may add that the neuralgia was in no way modified even when the toxic effects of the drug were the most manifest, although in a few days, under the use of cinchonidia, the pain became much less, and the patient far more comfortable.

The preparation used was Hance's fluid extract of gelsemium. I ordered ℥ss, and had what was left measured by the druggist who dispensed it, and found that there were ℥iii remaining, so that but ℥i was taken during the two weeks that it was administered.

The effect of the remedy varies much in different individuals. In one case recently under my care the patient took gtt. xiv of a reliable fluid extract three times a day, with the result of only slight dimness of vision. In the case of Mrs. T. I account for the excessive action of the drug by the fact that the preparation was very strong and that she had taken little or no food for several days.

The strength of different fluid extracts of gelsemium also varies, and my experience in the above case, as well as in another where very unpleasant symptoms were produced by doses of seven drops, leads me to advise that no larger dose of this preparation than three drops should be given until its effects are observed.

1534 Pine Street, Philadelphia.

ON DIALYZED IRON AS AN ANTIDOTE IN ARSENICAL POISONING.

BY RICHARD V. MATTISON, Ph.G.

THE recent case of arsenical poisoning reported by Dr. T. B. Reed in the *Times* of the 8th ult., and the successful treatment with solution of dialyzed iron, from its great clinical interest in partially establishing a fact, prompt me to give a few additional notes on the subject, the results of analyses completed November 7 of the current year.

The following is a partial résumé of the analytical testimony, a full account of which may be found in the January number of the *American Journal of Pharmacy*:

Preliminary to the thorough treatment of the subject, a careful test for the presence of arsenic was made of all the reagents and glass-ware used in the experiments, with negative result, no trace of arsenic being found: then—

a. Ten centigrammes of arsenious acid were dissolved in twenty-five cubic centimetres of distilled water and tested for arsenic, abundant evidence of which was readily shown. To this solution five cubic centimetres of a five per cent. solution of dialyzed iron were added, and the whole diluted with distilled water to the measure of one hundred cubic centimetres, and filtered. No apparent change was effected, the filtrate giving abundant evidence of the presence of arsenic.

The above experiment was again performed with the substitution of ordinary water, with like result.

b. A like quantity of arsenious acid was dissolved in the same amount of distilled water as before, and to this a few drops of hydrochloric acid were added. To this solution five cubic centimetres of solution of dia-

lyzed iron were added, the whole filtered, and the filtrate tested as before, with like result.

This experiment was then varied by the substitution of ordinary water and the addition of first one cubic centimetre of the iron solution, and afterwards the addition of twenty-five cubic centimetres, and dilution of the whole with water to the measure of one hundred cubic centimetres.

The various testings were without change, the abundance of arsenic being readily shown.

c. A third experiment was now instituted. Ten centigrammes of arsenious acid being taken, as before, and dissolved in the same quantity of water, this was added to one thousand cubic centimetres of a solution made to represent the gastric secretion of the human stomach, and composed as follows:

Solution representing normal gastric juice.

Water	994.40
Pepsin	3.19
Sodium chloride	1.46
Potassium chloride	0.55
Calcium chloride	0.06
Magnesium phosphate	0.12
Hydrochloric acid	0.20

To the quantity of the above (one thousand cubic centimetres) the solution of dialyzed iron was added, and the colorless filtrate tested by Fleitmann's and Marsh's tests. No evidence of the presence of arsenic could be detected, and the experiment was then repeated, with a like result.

The experiment was then varied by dissolving fifty centigrammes of arsenious acid in the above quantity of the artificial gastric juice and allowing the whole to remain at a temperature of 38° C. (100° F.) for two hours, with occasional agitation. The mixture was then transferred to a filter, and one hundred cubic centimetres of the filtrate evaporated to five cubic centimetres, and this added to a Marsh's apparatus of one hundred cubic centimetres capacity, without the slightest trace of arsenic being shown on the application of the test.

This experiment was then repeated with both Fleitmann's and Marsh's tests without a trace of arsenic being obtained.

After the repeated unsuccessful attempts to detect the presence of arsenic in this way, one drop of liquor arsenici chloridi was added to each flask (still containing the filtrates as above described), and the result was immediate, the presence of arsenic in considerable quantity being instantly shown by the characteristic reactions.

Since these experiments prove that solution of dialyzed iron has no action on arsenious acid except under certain conditions, the following facts seem clearly set forth:

1. That dialyzed iron, to be of value as an arsenical antidote, must be first precipitated by the action of some neutral or alkaline salt.

2. That this precipitation and the consequent production of ferric hydrate are accomplished when this preparation is taken into the stomach; and that, therefore,

3. The solution of dialyzed iron is a valuable antidote for arsenical poisoning, and should be administered promptly in cases of emergency as a temporary antidote, followed of course by emetics.

Now, it may readily be conceived that an antidote may be necessary in cases where the enfeebled stomach of the invalid may not be able to secrete sufficient gastric juice to precipitate the iron, even under the stimulus of the poison, or that the arsenic may be ingested into a healthy stomach entirely free from any gastric secretion.

While under these circumstances the secretion of mucus would perhaps prevent absorption for a certain length of time, yet in these cases, and indeed I believe in *all* cases, notwithstanding the exceedingly favorable result obtained by Dr. Reed with his patient,—a healthy young woman,—the administration of dialyzed iron as an antidote for arsenical poisoning should be followed immediately by a teaspoonful or more of common salt, thus insuring the formation of the ferric hydrate and the consequent neutralization of the poison. This should at once be followed by an emetic, as the action of the ferric hydrate on the arsenic is not to coagulate it, as Dr. Reed infers, but to form a perfectly definite chemical salt known as the arsenite of iron (ferric arsenite), which, although practically insoluble, is far from being harmless.

One word more, and I am done. Though physicians may be readily excusable for not being familiar with the chemistry of the various compounds entering into their daily practice and prescriptions, yet if it is worth while to learn at all the constitution of any compound, it is far better to learn the truth than any supposititious or interested statement. In perhaps twenty or more medical journals I have seen the statement made by Dr. Reed, viz., that "dialyzed iron is a solution of peroxide of iron in the colloid form, with *perhaps* [italics mine] a trace of hydrochloric acid," or, as others put it, "a solution of pure peroxide of iron in the colloid form in pure water."

This error originated in this country with a single firm of manufacturers, and has been most industriously circulated by them, and, as far as I know, by them only, with the exception of the various medical journals above referred to. Again and again I have noticed the statement, reflected and refrained from its correction, but the time has certainly arrived when the composition of this remedy should be generally known.

It is, then, simply an oxychloride of iron (ferric oxychloride), of variable composition, represented by the formulæ $Fe_2'''Cl_6$,-$7Fe_2'''O_3$, to $Fe_2'''Cl_6$,$23Fe_2'''O_3$; in other words, a variable preparation containing from seven molecules of ferric oxide to one of ferric chloride, all the way up to twenty-three molecules of ferric oxide to one of ferric chloride. The preparation of ferric oxychloride known as "dialyzed iron" *must* contain a notable quantity of hydrochloric acid, or it cannot exist, this acid not existing in a free state, but combined as ferric chloride.

The tincture of ferric chloride (U.S.P.) contains a large excess of free hydrochloric acid; and it is probably this to which the preparation owes its value in many instances.

Dialyzed iron, on the contrary, is simply a more basic salt, free from the excess of free acid, and only differs from the officinal ferric chloride in this respect.

It should be remembered, then, that dialyzed iron is no novelty, but has been known for twenty years, and sold in the American market for at least fifteen years; that it is *not* "a soluble ferric hydrate," nor "a soluble peroxide of iron in the colloid form," but simply a soluble ferric oxychloride, and that its use in arsenical poisoning should be immediately followed or preceded by the administration of sodium chloride and followed by emetics, and that only under these circumstances can it be recommended, to borrow the appropriate words of our friend Dr. Reed, as a "safe, reliable, always-ready-at-a-moment's-notice remedy and antidote for arsenical poisoning."

332 North Front St., Philadelphia.

Death of Professor Wunderlich.—The death, at the age of sixty-two, of Dr. C. A. Wunderlich, Professor in the University of Leipsic, and director of the Medical Clinic of that place, is announced.

NOTES OF HOSPITAL PRACTICE.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF NEW YORK.

CLINIC OF ALFRED L. LOOMIS, M.D.,

Professor of Pathology and Practice of Medicine,

Oct. 8, 1877.

A COMPLICATED CARDIAC CASE.

WE have here, gentlemen, a man of middle age, who gives us the following history in answer to our inquiries. He always enjoyed excellent health (not remembering any previous illness whatever) until the early part of July last, when he went out target-shooting, and, being overheated, took a cold drink, which had the effect of suddenly checking perspiration. He tells us that he had been accustomed to shooting at distances of 200, 500, and 900 yards, and that he had always been able to hold the rifle steadily; a point of some interest in connection with the case. Pursuing our questioning, we learn that he first had a chill, followed by fever; and when I ask him what followed that, he replies, naïvely enough, "The doctor." It seems that he was confined for eight or nine weeks to the house, and a great part of the time to bed. He says that he suffered most from fever, which came on about three times a week and was usually preceded by a chill. He also had some pain in the left side, which ran around towards the back. He positively denies having had rheumatism either at this period or any time previously, but says there was some swelling of the ankles, which, however, was unaccompanied by any pain or redness, while there was no swelling at all in any other part of the body. He has had a cough almost ever since the commencement of his illness, and he describes the expectoration accompanying it as being "like oysters." Furthermore, the sputa not unfrequently contained blood, which was for the most part in small masses and of a dark color. He never spat up any bright-colored blood. He makes the remarkable statement that he has lost fifty pounds of flesh since he has been sick. For many years he was accustomed to drinking large quantities of lager beer,—five, six, ten, and sometimes even more glasses daily. He has scarcely taken any at all during his illness. He cannot walk now nearly as well as formerly, and always gets very short of breath in going up-stairs.

(Three students being now called into the amphitheatre, Prof. Loomis asked the first one what he thought was the matter with the patient, after hearing the above history; when he replied that he thought it probable that he originally had intermittent fever, and that he was now suffering from some trouble with the lungs.) Now, first, as to the intermittent fever. The man tells us that he resides in Williamsburgh, and that while they do have chills and fever in some parts of the town, there is none at all in the particular locality where he lives. You will find it exceedingly common when you ask patients if there is intermittent fever in their neighborhood for them to reply they don't have any *just* there, though they do have it a little ways off from there; and perhaps you can hardly call it lying, it is so natural to say it. Well, I think we will have to admit that our patient has had intermittent fever. But now as to the trouble with the lungs: what would you suppose to have been its nature? Student: "Pleuritic." Why so? "On account of the pain on the left side." What other causes besides pleurisy might we have of pain seated here? "Disease of the heart, pleurodynia, intercostal neuralgia, aneurism." If it was pleurisy that he had, do you think the shortness of breath of which he complains to be due to some remaining effusion? "Yes." Does a man have spitting of blood from pleurisy? "Sometimes." From what source is it then derived? "The small bronchial tubes." Would the blood from them be of a bright or dark color? "Bright." But here, you see, the blood is dark-colored. Can you tell me in what diseases the blood expectorated is dark and in small masses? "Capillary bronchitis, I think." In capillary bronchitis a man has no business to have bloody expectoration at all. In phthisis the blood coughed up is always bright-colored, and it comes in the early stages from the capillary bronchial tubes, and in the later stages, when there are cavities, from the rupture of blood-vessels. But how about heart disease? You know that the color and character of the blood in the sputa is one of the distinctions between diseases of the lungs and heart. In those of the heart the blood is dark in color and found in small masses, resulting from infarctions in the lungs due to obstructed circulation. Presumably, then, we have here some affection of the heart, and perhaps we can arrive at the diagnosis before examining the organ. There is nothing characteristic about the pulse, however, in this case, since it has neither the jerking character of that usually found in aortic, or the indistinctness of that of mitral disease. We have some guide in the swelling of the ankles which has been noted, and which we found was not due to rheumatism; but now let us strip the patient, without further conjecturing.

On inspection we at once notice three points which are certainly sufficient to direct our attention to the heart,—viz., epigastric pulsation, abnormally large area of impulse, and throbbing of the carotids. The apex-beat is found to be about an inch and a half below and a little to the left of the nipple, and on placing the hand upon the chest-walls it seems very indistinct; so that it is almost impossible to feel exactly where the impulse strikes, its force being diffused over such a large space. We have in the first place, then, a confused apex-beat, extending to the left of the nipple, to the right of the median line, and down to the epigastrium. Among the causes of epigastric pulsation may be mentioned enlargement of the right side of the heart, pulmonary emphysema, and any abnormal growth which presses the heart over towards the centre of the thorax. This confused apex-beat probably indicates hypertrophy with some dilatation of both sides of the heart. Now what do you hear on auscultation in this case? (The first student, after making use of the stethoscope, stated that he heard a murmur whose greatest intensity was at the base, and which was conveyed downward, accompanying the first sound of the heart; so that he attributed it to aortic insufficiency with consequent regurgitation. Prof. Loomis, however, showed him that if there were aortic regurgitation he must have mistaken the second sound for the first, since it must invariably accompany the *second* sound, because it comes with the closure of the valves. The second student said he heard a basic murmur synchronous with the second sound; while the third said he heard a murmur as distinctly at the apex as at the base, that it occurred after the first sound and before the second, that it seemed to be conveyed to the left of the apex, and that he attributed it to mitral regurgitation.) Now let me tell you what *I* hear. First, there is a distinct murmur

at the apex, which is conveyed to the left, and which has been rightly attributed to mitral regurgitation. Then at the base there is a murmur heard with the first sound and conveyed upward, and, in addition, another murmur, which is heard with the second sound and conveyed downward. So that we find our patient suffering from mitral regurgitation and both aortic obstruction and regurgitation.

One interesting feature about this case is that the patient has not had rheumatism. What then was the starting-point of the cardiac trouble? The history is a very indefinite one, so that we cannot derive very much information from that. He says that in the commencement of his recent attack he was treated for inflammation of the lungs; but this statement certainly seems open to some question. On a physical examination of the lungs I notice a very slight difference in the percussion-note on the two sides, and in both I hear sonorous and sibilant râles scattered through them, and also some few crepitant râles at the base; which signs are to be regarded as due to the obstruction in the circulation. It seems more than likely, I must say, that the case commenced with some other disease than inflammation of the lungs. But whatever may have been the nature of the acute attack, the heart disease may have existed for some time before this. If it did not, its course has certainly been extraordinarily rapid. I regard it as altogether more than probable that he had an endocarditis some time previous to the illness that came on in July. It is by no means a necessity that a patient should suffer from rheumatism in order to have this affection. In those who are accustomed to drinking freely, rheumatic endocarditis not infrequently occurs without any other rheumatic trouble, and oftentimes with really no symptoms whatever. But if the valvular trouble existed previously, it must undoubtedly have been greatly increased by his recent attack. By the malarial fever from which he seems to have suffered there was probably caused great engorgement and severe bronchitis, with an unusual amount of pulmonary œdema; and to this malarial attack we are forced to look for the rapid extension of the cardiac disease, since he had no symptoms before it, and no one could be without symptoms who had such serious heart-trouble as we find here.

This is a case in which treatment will accomplish a good deal. Not that I mean that there is any possible chance of curing the patient,—the lesions are much too extensive for that,—but his general condition can no doubt be greatly improved. In the first place, we must get rid of the pulmonary congestion; and this can best be done by the application of dry cups every day or two. There are two remedies especially indicated for improving the nutrition and stimulating the flagging heart, and these are iron and digitalis. The heart's action is exceedingly feeble and irregular, and nothing will strengthen and regulate it like digitalis. The iron and digitalis may often be given alternately with advantage; but of late I have come to giving digitalis in the form of *digitalin* a good deal in combination with iron. The dose is quite small, one-hundredth or one-sixtieth of a grain, and it should ordinarily be given about twice a day. Digitalis, as you know, is a direct heart-tonic, and greatly increases the nutrition of the organ. In addition, rest must be insisted on; for this constitutes the most important element in heart affections. The patient, of course, is not to remain absolutely quiet, but must take great care to avoid everything that will throw increased work upon the heart, which is to be spared in every possible way. In pursuance of this plan he must keep from any mental excitement as much as possible, as well as be particular in his diet, eating principally of those albuminoid foods which will furnish the greatest amount of sustenance with the least amount of waste. He must avoid all stimulus except in such small quantities as may serve to assist nutrition. A moderate amount of exercise may be permitted, and will be of service in invigorating the system; but of course all violent exertions are to be interdicted. One thing we must look out for. The enfeebled heart-circulation is going to have a bad effect upon the portal circulation; so that it will be necessary to give the patient an occasional drastic cathartic, and I know of none so good in these cases as calomel (in five or more doses), which may be combined with or followed by some other purgative. This is especially indicated in the present instance, as the man lives in a malarious region. It is important that the urine should be examined from time to time for albumen, which not infrequently results

from the effect of the heart-trouble upon the renal circulation, when there may be no degenerative disease of the kidneys. Should it make its appearance in the urine, the remedies above mentioned should be given in increased quantities until it disappears. Finally, quinine will have to be given our patient as occasion may require.

TRANSLATIONS.

Relation of Erythema Nodosum to Tuberculosis.—Oehme (according to *Centralblatt für Chirurgie*, No. 43, 1877, 680) has observed that, though in strong and healthy individuals erythema nodosum leaves no unfavorable sequelæ, for joint-affections and diseases of the endocardium do not occur as a rule, yet in persons of bad constitution or of unfavorable hereditary tendencies the advent of erythema of this character is ominous. In such cases general tuberculosis is liable to occur very soon, according to his observations; and he mentions one case where a child apparently recovered from erythema nodosum died a few weeks later of tubercular meningitis. He therefore believes the affection to be a general disease, of which the eruption is merely an early symptom.

J. B. R.

The Use of Lactate of Sodium for Hypnotic Purposes.—The hypnotic effect of this drug, which was believed to exist from the observation of Preyer, has been tested by Kroemer, who gives a rather adverse report (*Centralblatt für Chirur.*, No. 43, 1877, 685; from *Deutsche Med. Wochenschrift*, Nos. 15, 16.) He obtained sound sleep in no case by using lactate of sodium, and does not appear to have observed any special calmative action. Temperature, pulse, and respiration were in no wise influenced by the remedial agent; in two cases diarrhœa resulted, and in another instance obstinate constipation remained, notwithstanding large doses of the lactate of sodium. The number of patients was seventeen, and they suffered with melancholia, mania, paralytic dementia, and secondary mental troubles; so that the range of cases was quite varied. The dose administered was nearly 400 grains (25 grammes), and the average number of doses to each patient over six, though one or two took as many as seventeen and twenty-six doses. J. B. R.

Metrorrhagia treated by Ergotin administered Subcutaneously.—In *Bull. Gén. de Thérapeutique*, 1877, pp. 337–344, Constantin Paul gives the results of his experience in the subcutaneous use of this drug for uterine hemorrhage. He employs a solution of specially prepared extract of ergot (ergotin) in glycerin and water, in the proportion of one part of the drug to fifteen of the solvent. He mentions a number of cases where frequent hemorrhages occurred as a sequence of cancer of the uterus, and in nearly every instance the bleeding ceased in five or ten minutes after the injection of the remedy. The dose employed was about one grain of the extract, which would seem to be stronger than the ergotin used in our hospitals. He also had similar success in hemorrhage after parturition. The author states that in the fourteen cases observed the action of the remedy was efficacious, and that it is much more prompt than the former method of administering ergot by the stomach; and in these cases rapidity of action is certainly of great moment. Moreover, the hypodermic method has the advantage of producing much less colic than the introduction of ergot in powder by the mouth, and of being more constant in its action. Finally, the dose subcutaneously is much smaller proportionally than is usually experienced in hypodermic medication, and there seems to be little inflammatory trouble produced locally. J. B. R.

Production of Albuminuria by Salicylic Acid.—M. Gubler reported to the Society of Therapeutics (*Bull. Gén. de Thér.*, 1877, p. 378) that he had observed, while using this drug, that in certain cases there was diminution of urine, and in others increased quantity of the secretion; in fact, that there was diuresis when the salicylic acid acted on normal kidneys; and diminished amount of urine when the organs were the seat of any lesion, and in the latter cases he found sometimes albuminuria. If the acid was stopped, the albumen gradually disappeared from the urine, and the emission of the urine became natural. There are then, the author thinks, two indications, viz., that in large doses salicylic acid can produce renal lesions, and, secondly, that in congested kidneys it is imprudent to prescribe this drug. J. B. R.

Action of Quinine on the Nervous System.—Dr. Antonio Curci has made

some experiments in regard to the action of quinia on the nerves of motion and sensation, and on functional disturbances of the vaso-motor nerves (*Giornale di Medicina Militare*, Rome, 1877, No. 9, p. 891; from *Lo Sperimentale*). His conclusions are summed up somewhat as follows:

Quinia retards the velocity of the excito-motor current, and retards and diminishes general and tactile sensibility as well as sensibility to pain and also the specific senses. It has a regulating power over vaso-motor disturbances, and over other sensory and motor disturbances of the nerves of vegetative life, and therefore, without doubt, has action on these nerves as on those of animal life. The retardation of excito-motor currents and excito-sensitive currents does not seem to follow from a debilitating action, but from a special restraint of quinia on given currents and on function; by which it impedes the facility of excitation, in weakness accompanied by erethism, and combats morbid super-excitability, and does not permit exhaustion. The therapeutic action in certain neuroses of sensibility and motility cannot be explained better, at present, than by means of this restraining action on nervous currents, and on the functional power of the nervous system in general. In small doses the drug has a tonic and corroborant action on the nerves, and thus probably restrains function and moderates an excessive development and inopportune waste of force. J. B. R.

Diarrhœa treated by Oxide of Zinc.—M. Bonamy has adopted (according to the *Revista Médica de Chile*, Año VI. núm. 1, p. 26) in obstinate diarrhœas the treatment indicated by Gubler, that is to say, about fifty-five grains of oxide of zinc with a very small amount of bicarbonate of sodium, to be divided into three or four doses and one such dose to be given every three hours. He has not found it to cause vomiting, and finds the diarrhœas in which he has employed it to be relieved, though resisting other remedies, and to return when this drug is suspended. Moreover, cases of several months' duration have been modified by the administration of a few doses of oxide of zinc. J. B. R.

Epileptic Seizures induced by a Polypus of the Larynx.—In *La France Médicale*, No. 72, 1877, p. 570, is related a case which was reported by Sommerbrodt in *Berlin. Klinische Wochenschrift*, where epileptic fits appeared to depend on the irritation of a laryngeal polypus. The patient, aged about 55 years, had suffered with hoarseness for a long time, but finally was attacked with great dyspnœa and fits of unconsciousness accompanied by frothy saliva and biting of the tongue. There was after one of these attacks a slight palsy of the left side and left face. The frequency of the fits increased until he had several in one day, and it was found that the disease was uninfluenced by bromide of potassium. A laryngeal tumor of considerable bulk and triangular in shape was seen attached to the left vocal chord, which by its weight caused a depression of the chord and almost entirely obliterated the opening of the glottis. The right vocal chord was entirely free, and the left chord could be seen in nearly its whole extent notwithstanding its relations to the tumor. The growth was removed with very little bleeding, and was found to be a fibroma. Five months after the operation there had been no epileptic spasms, and there was no return of the tumor. The account concludes by saying that one hesitates to attribute the fits exhibited in the patient to the polypus, and mentions that fifteen years previously the man had some similar attacks of a light character, which disappeared when an old cicatrix on the back of the hand had been removed, only to return years afterwards when the polypus appeared,—for it is said that the polypus had been seen with the laryngoscope before the last epileptic attacks were generated. Hence it probably at least acted as the exciting cause of the seizures. J. B. R.

The Excretion of Mercury during its Use as a Medicine.—According to the *Centralblatt für die Med. Wissenschaften*, No. 30, 1877, p. 555, Hamburger found that the urine contained mercury regularly during the use of inunctions of mercurial ointment, though an examination showed that the milk contained none. When mercury was administered by suppository the urine and milk both gave evidence of the presence of the drug. He used the electrolytic method of Schneider, of which he tested the usefulness by experiments. J. B. R.

Obstinate Vomiting during Pregnancy greatly relieved by Dilatation of the Cervix.—A woman, aged 22 years,

in the second or third month of her first pregnancy, entered the Maternity Hospital of Santiago, under the care of Dr. A. Murillo, suffering with incessant vomiting (*Revista Médica de Chile*, Año V, núm. 6, p. 235). She was very weak, had gastric distress, and vomited every two or three minutes, ejecting food, bilious matter, and mucus. The tongue was coated, the pulse 120 per minute and feeble, the skin dry and hot; and giddiness like that of sea-sickness prevented her sitting up. As pepsin, calmatives, tonics, ice, milk, etc., had been tried without result, Dr. Murillo determined to resort to dilatation of the neck of the uterus, as recommended by Copeman, of Norwich, England, before resorting to measures to induce abortion. He therefore introduced the finger into the softened cervix as far as the internal orifice, and kept it there for two minutes. He then ordered ice-cold milk punch by the mouth; and broth, pepsine, and muriatic acid by enema twice daily. The cervix was dilated in a similar manner four different times at intervals of one or two days; and morphia given to produce sleep, which, however, did not have the desired effect. At the end of a week the improvement was very marked, the patient vomited less frequently, retained the light aliment allowed, and could sit up without being giddy. In eleven days she left the hospital to go to the country, not entirely cured, but very greatly benefited. J. B. R.

Purpura following the Use of Iodide of Potassium.—*Le Mouvement Médical*, No. 37, 1877, p. 413, describes a new form of eruption, produced by iodide of potassium, that has been described by M. Fournier. He denominates this medicinal eruption Purpura Iodica or Petechial Iodism. There are discrete spots on the skin, of a blood color, which do not become effaced by pressure: these have appeared usually on the anterior tibial region, though one case is mentioned where they were seen on the trunk only. The eruption in susceptible persons occurs a few days after the use of the iodic preparation, and recurs at any new administration of the drug. It disappears spontaneously after the lapse of two or three weeks. J. B. R.

Pulmonary Tuberculosis in Hysterical Subjects.—M. Leudet presented a paper on this subject to the French Association for the Advancement of Sciences (*La France Médicale*, 1877, No. 72, p. 572), and gave the following as his conclusions. 1. Hysteria can precede pulmonary tuberculization, accompany its onset, or appear during its course. 2. Generally convulsive hysteria ceases at the beginning of the graver disease or during its early stages. 3. The neurosis often causes troubles of sensibility and motility during phthisis, but these manifestations must be distinguished from peripheric vaso-motor nervous troubles which are observed in chronic maladies. 4. The pre-existence of hysteria does not prevent the rapid development of pulmonary tuberculosis, though generally phthisis in hysterical patients has a long duration.

J. B. R.

Bismuth in the Treatment of Prolapse of the Rectum and Hemorrhoids.—A case is recorded in *La France Médicale*, No. 86, p. 682, where a considerable protrusion of the rectum was perfectly cured by means of bismuth powder used locally. The physician introduced every day into the bowel, after replacing it, a small spoonful of bismuth (subnitrate?) in a small amount of starch-water. Cure followed in a week. Good results followed similar treatment in cases of prolapse in children, and in hemorrhoids. J. B. R.

Citric Acid in Diphtheria.—Caspari (*Deutsch. Med. Wochens., Cbl. f. Chir.*, 1877, p. 670) has used citric acid exclusively in some forty cases of diphtheritis, obtaining good results in every instance. In severe cases occurring in adults or large children Caspari pencils the pure citric acid solution upon the diseased surface. In young children or less severe cases of disease he uses the solution diluted with ten per cent. of glycerin. In all the cases in which this treatment has been employed the result has proved fortunate; while in two instances of children under one year, where the parents forbade the treatment because of its painfulness, both of the little patients succumbed. X.

Cauterization in Fistula Ani.—M. Broca (*Jour. de Méd. et Chir. Pratique*) prefers operating in anal fistula with the aid of the actual cautery, either in the form of the galvano-caustic loop or the thermo-cautery. This operation has the advantage of dispensing with the tent of charpie, which is so irritating and annoying. The sides of the wound made by the cautery have no disposition to immediate union. X.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, JANUARY 5, 1878.

EDITORIAL.

OUR POVERTY.

IN all parts of the country there has been for a long time a gradually rising ground-swell of murmur, here and there breaking into a tumultuous wail, over the increasing difficulty of earning a support in the profession of medicine. On the table before us lies a brilliant pamphlet,* which shows but too plainly that not only are the multitudinous complaints well founded, but that they also depend upon a cause so deep-seated that no remedy can avail, save only the reduction of the profession by the outcrowding of its members; the only hope lies in famine and the consequent destruction of the weakest, —the oft-recurring tragedy of nature, in which, though the end be good, the individual and his miseries count for nothing, the race being everything.

That the medical profession in America has outgrown the possible food-supply is abundantly proven by the following figures, extracted from Dr. Pepper's pamphlet: In the United States there is one doctor to every 600 inhabitants; in France, one to 1814; in Italy, one to 3500; in the German Empire, one to 3000; in the Austro-Hungarian Empire, one to 2500; in Great Britain (where there is great complaint of overcrowding), one to 1672; in Canada, one to 1193. We leave comment upon these figures to Prof. Pepper. They seem to us to speak for themselves; especially as the rate of increase in this country is a rising one and is already out of all proportion to the need: thus, in the three principal countries of Continental Europe, with a population of 113,000,000, the yearly number of medical graduates is 1850, whilst in the United States, with less than 45,000,000 of population, the annual medical outpouring last year reached 3000. It would be interesting to compare the mortality lists.

Figures such as these reveal why it is the screws are pinching so many, and why the assaults upon our dispensary systems and other medical charities have of late grown so vigorous. As our readers well know, much space has been recently allotted in these columns to a discussion of the evils of our medical charities. It certainly has been shown, here and elsewhere, that these evils do exist. On the other hand, infinite suffering is relieved; illnesses, otherwise full of ruin and physical agony, are made oases of comfort in life-wastes of misery; lives are saved, and often lives, too, whose sacrifice means loss of all pecuniary resources, and the degradation of absolute poverty to families of growing children.

The evils that are wrought are plainly twofold: 1st, a certain amount of pauperization in the lower class, and some demoralization of a higher class by the encouragement of a species of stealing, or of obtaining money or its equivalent under false pretences; 2d, robbery, to some extent, of the younger members of the profession of a much-needed support.

Balancing the evil and the good, the latter immensely preponderates; so immensely, that to do away with medical charities would be almost to do away with Christian civilization. The mere proposal of such a remedy is a crime.

It must further be borne in mind that the impoverishment of any physician by the abuse of medical charities is ludicrously small, when compared with that caused by the overcrowding of the professional ranks. Thinning out the doctors, not thinning out the dispensaries, can alone bring decided relief. Nevertheless the attempt is worthy, to discover

* Introductory Address. By William Pepper, M.D. Philadelphia, J. B. Lippincott & Co.

if the abuse of medical charities, which at present certainly exists, can be avoided.

In doing this, care must first be taken to clearly distinguish between hospitals and dispensaries. As regards the former, in this city it seems to be unquestionable that, whilst there is no further need of new hospitals, or of more "pay beds," there is need of more "free beds" in existing institutions, or, in other words, of greater endowment of hospitals already founded.

The leaving of home, the herding with strangers, the acceptance of the discipline of the hospital, the wide-spread feeling that the patient is in the power of men more or less irresponsible and under constant temptation to try new methods of treatment, all tend to prevent abuse of the hospital, but do not have force in restraining the attendance upon the dispensary. These and similar causes have confined the abuse of medical charity almost entirely to the latter class of institutions. To remedy the evil various proposals have been made. Even the entire closure of all dispensaries has been advocated. Without entering into detail, this proposition is to be reprobated for the following reasons. First. There are many cases requiring special skill, which can only be obtained free of cost at some such institution as a dispensary, where men of exceptional skill or experience are able either to see the cases themselves or to superintend their treatment by younger men in process of training. Second. There are numerous cases which cannot afford to pay anything, and which can be treated with least expenditure of professional time and nerve-force in dispensaries. As dispensaries ought to go on, and as they undoubtedly will do so, efforts at reform or prevention of abuse should attempt to diminish the temptation to patronize them by lessening the costliness of medical service at home and by diminishing the attractiveness of the dispensary. Reducing at the same time the *vis a tergo* and the *vis a fronte* of necessity lessens the speed of travel. The consideration of how far and in what way this can be done must, however, be postponed to our next issue.

Requiescat in Pace. — Pongo is no more. His gentle spirit fled November 12. For several days his friends had known that he was suffering from a slight diarrhœa; but the evening of his death, Dr. Falkenstein, who had rescued him from the wilds of Africa and was teaching him the ways and manners of his more highly developed cousins in the Berlin Aquarium, left him, unaware of the impending catastrophe. The African women took pity on Mungo Park; but no one eased the dying moments of poor Pongo, separated by oceans and continents from his hairy mother and brethren. Post-mortem examination showed that, like many a less esteemed but more human infant, he died of enteritis. His body has been purchased by the Berlin Anatomical Museum for $1500, and his anatomical memoirs are to be written by Professor Von Hartmann as a fasciculus of his great work on "Anthropoid Apes."

PROCEEDINGS OF SOCIETIES.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

Thursday Evening, October 25, 1877.

The President, Dr. H. Lenox Hodge, in the chair.

Fatty heart, with polypus of right auricle. By Frederick P. Henry, M.D.

Rachel N., æt. about 50, was admitted to the Episcopal Hospital on October —. Her clinical history previous to admission was very meagre in details, and is essentially comprised in the fact that her illness began in December last with dyspnœa and precordial distress, and gradually increased in severity. The date of the beginning of the dropsy—the most prominent symptom—was not obtained.

On admission, she was extremely feeble and very anæmic-looking, but did not present an appearance of cyanosis. Her feet and legs were

quite œdematous, and the abdomen greatly distended with fluid: at the widest portion it measured forty-eight inches.

I examined the urine carefully, but found neither albumen nor casts. The dyspnœa was not great when in the sitting posture, due doubtless to diminished sensibility of the respiratory centre from carbonic-acid poisoning, for she was very drowsy. A portion of each night had to be passed in a chair.

The symptoms relating to the heart were all objective, the patient making no complaint, and were very interesting. The pulse combined, in their highest degrees, the qualities of frequency, irregularity, and inequality. Several feeble beats would occur in rapid succession, to be followed by two or more pulsations more normal in fulness and rhythm, then perhaps an intermission equal in time to one or more of the most natural pulsations, and again several rapid, fluttering beats. During another fraction of a minute this order might be entirely changed. The action of the heart, it is important to remark, entirely corresponded with the radial pulse. It is well known that we may have a pulse similar to the one I have described with a regularly acting heart,—the "*pulsus paradoxus*" of Kussmaul,—or, on the other hand, we may have a regular pulse with an irregularly-acting heart, *e. g.*, when the ventricular contractions are not synchronous. The heart-sounds were faint, but uncomplicated with murmur, and the apex-beat was feebly felt in the normal situation. Owing to the great weakness of the patient, the examination was not protracted, and no attempt was made to determine the area of precordial dulness; as will be seen later, the condition of the adjacent lung would have rendered any such attempt hopeless.

I had previously seen several hospital cases precisely similar in every respect to the one under discussion, in none of which did I obtain an autopsy, for the reason that none of them died while under my care; indeed, the tenacity with which they clung to life was always a source of wonder to me. My diagnosis in all these cases was atheroma of the orifices of the coronary arteries, with subsequent fatty degeneration, and, as it is now confirmed by an autopsy in one case, I have no doubt whatever that it was correct in every instance. Ordinary fatty degeneration does not produce more than a slight irregularity, and even that exceptionally, whereas the combination with atheroma of the coronary orifices produces both it and inequality in a high degree. The scanty and irregular supply of blood, it is easy to understand, would produce just such an action, whether we regard the cardiac contraction as dependent upon a direct influence from the blood or an indirect one through the cardiac ganglia.

The patient died suddenly on October —. Tapping was not resorted to, because the effusion diminished very perceptibly under a treatment designed to promote arterial tension and increase the action of the bowels.

At the autopsy, the pericardial sac contained about two ounces of a greenish-yellow serum, the sac itself being healthy. The heart was considerably enlarged by dilatation; its walls pale, flabby, and evidently fatty. The auriculo-ventricular valves, on both sides, are thickened, especially at their free borders, and have lost their transparency, being of an opaque yellowish-white. Were it not that they appear perfectly competent, I should say, from their appearance, that they were the seat of a chronic endocarditis. The question of competency is not always easy to determine, but I think it will be agreed by those who examine these valves that, if the amount of thickening present were due to inflammation, there would also be present an amount of induration and contraction that would produce very manifest stenosis, or insufficiency, or both. If any abnormality were present, it was undoubtedly insufficiency, and was probably relative, owing to dilatation of the venous ostia.

If this thickening is not inflammatory, what is it? I believe it to be fat,—a primary deposit of fat,—not atheroma, which is a fatty degeneration of previous inflammatory deposit; and think I have more than once observed fat in this situation that has been mistaken for atheroma. Fat in this situation is, so far as I know, not mentioned as a cause of cardiac disease, and, unless it be excessive, could hardly be so considered; but the limits to its deposit here, as in other situations, are probably very indefinite.

Can we decide this to be fat without the microscope? I think so, for the reason before given, that were the amount of thickening present due to inflammation, contraction would not be absent. The contraction of inflammatory deposits in this situation is peculiarly great.

In the next place, can the exact anatomical seat of this deposit be determined without the microscope? Let it be observed that the degree of this fatty thickening in the two auriculo-ventricular valves is very different, being much greater in the mitral than in the tricuspid. Now, unless our views as to the deposit of fat and fatty degeneration are entirely wrong, this is just the contrary of what we ought to find. The presence of highly-oxygenated blood is inimical to the deposit of fat, and in the left auricle we have the blood charged with oxygen to its utmost capacity, while in the right auricle the conditions are entirely reversed. Is this therefore a deposit of fat, or a degeneration—a metamorphosis—of elements existing in both valves in an unequal degree? In the mitral valve it is generally conceded that muscular fibres are present, indeed, I do not know that it is called in question by any one who has exam-

ined the subject; while in the tricuspid they are comparatively so rare that certain authorities are quoted in the text-books in support of their existence. They exist, therefore, in a very unequal degree on the two sides, so that a fatty degeneration on both sides of these valvular fibres would produce such dissimilar appearances as are observed in this specimen. Another interesting question upon which greater light might be thrown by further study of fatty changes in these valves is this: in fatty metamorphosis is there increased bulk of the diseased cell? If my views are correct, this must be answered in the affirmative, for the valves are thickened, and it would not be difficult to find numerous facts in support of this conclusion. At present I need only refer to the liver.

The right auricle contains a tumor which, under the name of cardiac polypus, was a source of great interest to the older anatomists. It is a cyst about the size of a filbert, containing a puriform fluid, and is firmly attached to the endocardium. It is unnecessary to describe the mode of formation of these cysts, but I will call attention to the fact that they may be the cause of serious functional disorder, and, apart from the formation of embolism by the discharge of their contents or their detachment, may, by their interference, produce dyspnœa, dropsy, and sudden death. This is admitted by Schroetter (Ziemssen, vol. vi.). In the present case the polypus is probably secondary to the fatty degeneration, to which was owing the feeble circulation requisite to its formation.

The liver was rather below the normal size, lighter in color and denser than normal. On section, it presented the nutmeg appearance in a marked degree. There was probably a combination of red atrophy with increased formation of interlobular connective tissue, cirrhosis. This cirrhotic complication was a principal factor in the production of the ascites. I make this assertion *because the urine did not contain albumen*. In my experience, an amount of cardiac disease sufficient *in itself* to produce ascites, is invariably accompanied with albuminuria. There may be exceptions to this rule, which is, as I said, based upon my own experience solely; but at least it is not too much to say that in cardiac disease with ascites, but without albuminuria, cirrhosis of the liver is to be suspected, and the cirrhosis, in relation to the heart-disease, may be either primary or secondary; in the former case, however, without there being any causative connection.

The kidneys were greatly congested and decidedly granular.

The lungs were healthy, with the exception of the bases on both sides, in which there existed hypostatic pneumonia. The tongue-shaped process of the left lung, and a portion of the anterior border of the superior lobe, were also consolidated, showing that any attempt to map out the area of precordial dulness would have been futile. The larger bronchi were congested; otherwise the lungs were perfectly healthy.

The preceding remarks may be summed up in the four following propositions:

(I.) The auriculo-ventricular valves contain muscular fibres whose physiological action is not thoroughly understood, as is evidenced by the numerous theories concerning the mechanism of their closure.

(II.) These fibres undergo fatty degeneration in common with the myocardium, and perhaps separately, and thus whatever active function they possess may be impaired or lost.

(III.) In addition to such loss of function, fatty valvular degeneration produces a mechanical interference through thickening of the leaflets.

(IV.) Thickening and opacity of valves, without contraction, is to be referred to fatty deposit or metamorphosis.

Dr. TYSON thought it more reasonable to suppose the fatty change in the valves to have been secondary to an inflammation and proliferation, succeeded by a fatty degeneration of the proliferated cells. The contraction of the valves, referred to by Dr. Henry as absent, he thought not a necessary consequence of inflammation. Dr. T. would expect it only in extreme degrees of inflammation. In regard to determining whether the fatty change was primary or the result of inflammation, Dr. T. thought we might be aided by the presence of unaltered proliferated cells alongside of others, the seat of fatty change, and alongside of these also the products of complete disintegration, including cholesterin plates.

Dr. NANCREDE thought it possible to have a fatty change without inflammation, due to imperfect nutrition of the parts.

Dr. GUITÉRAS said that the lesions in this case seemed readily explicable in the usual manner. These valves are not in a passive condition favoring a fatty infiltration. He thought that the case was one of commencing general atheroma, which, together with the disease of the kidneys (cirrhosis), subjected these valves to an unusual strain, giving rise to a slow inflammatory process. This explains why the left heart is affected long before the right, because the former is subject to the obstructions in the general circulation. He had frequently seen just such valves in the early stages of atheroma, and thought that contraction would generally follow in later stages. Dr. G. said that he would remind the Society of the interesting article on "Atheroma" written by Fothergill for the *Philadelphia Medical Times*, where he uses with great advantage the well-known theory of increased vascular tension, to explain the lesions of the heart in general atheroma.

Dr. HENRY replied that there are in this case very slight atheromatous changes in the

aorta, chiefly about the coronary orifices; and as the aorta is decidedly the most frequent seat of chronic endo-arteritis, it was a fair inference that the peripheral vessels were healthy. The radials certainly were so, if this can be determined by palpation during life. Dr. H. asked if it were possible for such a degree of inflammatory thickening to exist without contraction. He had frequently observed, at autopsies of cases in which during life there had been no sign of cardiac disease, an opaque and thickened condition of the borders of the auriculo-ventricular valves, the valves being undoubtedly competent. Can this condition be referred to inflammation? If so, it must be acknowledged that inflammation in this situation is often harmless,—a doctrine which has heretofore found no advocate. It must be borne in mind by those who consider this change inflammatory, and explain the absence of contraction to want of time, that this is not a recent case. The symptoms were first complained of in December last, nearly a year ago, and disease may have been present long before. Dr. H. was inclined to think there had not been sufficient resistance in the arterial circulation to account for valvular changes.

Dr. GUITÉRAS said that he desired to make a statement more fully explaining Dr. Fothergill's views. Dr. Fothergill lays particular stress upon this increased vascular tension, in the early stages of the disease. He accepts the views of Johnson and Beale, who consider the thickening of the vascular walls at first as a muscular hypertrophy; that this is brought about by the contraction of the arterioles to resist the passage of a blood loaded with effete matters from disturbed assimilation and elimination. In this manner he explains the increased arterial pressure, which is certainly demonstrable by means of the sphygmograph.

Report of the Committee on Morbid Growths.—"A microscopic examination of the thickened mitral valve of the heart, presented by Dr. Henry, shows the thickening to be due to an increase in the growth of fibrillar connective tissue, in which are seen numerous nuclei. The endothelial covering, at different points, is seen to have undergone an increase in cellular elements. There was not observed either fatty infiltration or metamorphosis. Your committee are inclined to consider the thickening as a result of a slow inflammatory process.

"November 8, 1877."

Abscesses of the liver. By Dr. JOHN GUITÉRAS.

Patrick G., æt. 39, admitted to the Philadelphia Hospital October 9, 1877.

Has always been a healthy man. Never had renal or pulmonary disease. Never had rheumatism. No syphilitic history. The family history is good.

Has been working along the Susquehanna River, near Harrisburg, this fall.

Three weeks ago had a chill, with fever. The chills and fever continued daily, with night-sweats. He has lost some flesh.

He arrived in the city to-day, and walked to the hospital.

He is a stout man, and does not seem to be very sick. Is not very pale. The heart and lungs are healthy. Appetite poor. Bowels costive. Liver enlarged, extending from the fourth rib to half-inch below the margin of thorax. Posteriorly it extended up to half an inch below scapula. Complains of some pain over the liver. Tongue coated; no vomiting, nor has there been at any time. Cannot sleep at night; has fever. (See temperature.)

October 10, 1877.—Fever continues. Quinine ordered. Nourishing liquid diet.

October 11.—Pain over the liver, with tenderness, especially towards the epigastrium. Bowels constipated. Quinine continued. Ordered castor oil.

On the 12th, 13th, and 14th, no change. Quinine had not been taken; was ordered, producing slight change in the temperature. Complained but little of pain in the liver.

15th.—Bowels moved in the morning. Got up in absence of the nurse, and walked downstairs to smoke a pipe. In the afternoon had profuse hemorrhages from the bowels. Hypodermic injections of ergotin arrested the hemorrhage; but active stimulation failed to bring about reaction. He died at six o'clock the next morning.

Post-mortem.—Lungs healthy. The right lung is adherent to the diaphragm. Heart healthy. Kidneys slightly fatty. Spleen normal. Small intestines healthy.

Large intestines are congested. The solitary glands enlarged. At the cæcum there are some large, irregular, but very superficial ulcers, without any infiltration of the surrounding tissue. About six inches from the valve, an ulcer with an infiltrated base was found. It is a transverse ulcer, extending almost all the way around the intestine. Its surface is covered with a slough. The large intestines contain a large amount of blood.

The liver is uniformly enlarged, very pale, flabby, and decidedly fatty. An abscess about the size of a fœtal head occupies the convexity of the right lobe. It has reached near the capsule, but there are as yet no adhesions to the diaphragm. Two abscesses that would hold a middle-sized orange each are found in the line of the longitudinal fissure and in the left lobe, near the upper surface, anteriorly. There is also a smaller one in the right lobe.

I dissected the branches of the portal vein, and found leading to every one of the abscesses a large branch of this vein, which seemed to have melted in the suppurative process. These branches terminated abruptly, and were only separated from the pus by the so-called pyogenic membrane. These blood-vessels showed no evidence of phlebitis.

neither could I find any embolus. The peritoneal covering at the seat of the intestinal ulcer was perfectly normal, and I could find no evidence of phlebitis there.

Temperature Record.—October 9.—Evening, P. 96, resp. 25, temp. 100°.

October 10.—Morning, P. 88, resp. 20, temp. 99°. Evening, P. 100, resp. 22, temp. 101°.

October 11.—Morning, P. 104, resp. 21, temp. 99°. Evening, P. 104, resp. 25, temp. 102⅖°.

October 12.—Morning, P. 92, resp. 21, temp. 99°. Evening, P. 108, resp. 24, temp. 101⅗°.

October 13.—Morning, P. 92, resp. 17, temp. 99°. Evening, P. 104, resp. 26, temp. 102°.

October 14.—Morning, P. 104, resp. 19, temp. 99⅗°. Evening, P. 104, resp. 22, temp. 101°.

October 15.—Morning, P. 104, resp. 19, temp. 98⅘°. Evening, P. 116, resp. 23, temp. 99°.

Remarks.—In the first place, in regard to the intestinal ulcer, the history of malaria and the absence of all evidence of syphilis or tuberculosis lead us to conclude that the ulcer is dysenteric. This case will swell the number of cases of latent intestinal ulceration; but yet it is probable that an investigation in this direction might have elicited from the patient a history of dysentery in the earlier periods of the disease.

It is surprising to note the slight constitutional disturbance that this extensive suppuration gave rise to. The most reasonable diagnosis seemed to be low continued malarial fever, with congestion of the liver. When I was told of the hemorrhage and death, I changed the diagnosis to typhoid fever of the variety called *ambulatorius*. Here was the error. At this time the diagnosis of abscess of the liver might have been made, because there were no grounds for a diagnosis of typhoid fever in the face of such a temperature-sheet, and of the history of the case. The patient complained so little of hepatic pain that the symptom had been allowed to fall into the background.

Probably the diagnosis would have been of little service, since I do not believe that the aspirator could have been successfully used.

It is of interest to note the absence of an embolus in the portal veins. I take it that the embolus in these cases belongs to the infecting variety, and breaks down into pus, together with the surrounding tissue, contrasting with the mechanical embolus of the pulmonary artery, that I exhibited some time ago, where the plug remained intact, and the wedge-shaped area of pulmonary tissue beyond was breaking down by a process of gangrene.

Dr. G, in reply to the question as to what were the symptoms in abscess of the liver, said that the disease was very apt to be latent. In two cases of abscess of the liver that he had seen previous to this one, the lesion had not been detected during life. In one a small abscess had opened into the pleural cavity, and the resulting empyema only was diagnosed. In the other, the abscess was enormous; it had for the upper wall the deeply-excavated left lobe of the liver, and the inferior wall was made up by the adherent stomach. The dyspeptic symptoms in this case were so slight, that the diagnosis of cancer of the stomach, determined upon by one of our best diagnosticians, was considered very doubtful.

In the present case, several symptoms were absent or imperfectly developed. The man was living in the temperate zone. The fever was not wearing him out, as is the case in suppuration; in fact, but little attention would have been paid to it had it not been for the thermometer. There were no localized bulgings, no fluctuation. The pain in hepatic abscess may be much better marked than in this case,—extending up to the right shoulder and accompanied with marked tenderness when the inflammatory process involves the peritoneum. Symptoms of obstruction of the duct or of the portal vein may or may not exist. The failures of diagnosis probably explain why many of these symptoms are not elicited from a large number of the cases.

Dr. HENRY asked if there was any enlargement of the mesenteric glands. In a case of peritoneal tuberculosis reported by him to the Society three or four years ago, the peritoneum covering the intestines was studded for many feet with miliary tubercles. The mesenteric glands at the spinal attachment of the mesentery were matted into a tumor several inches in circumference. There was almost incessant colliquative diarrhœa, though the intestinal mucous membrane appeared healthy throughout. In another case, the intestine was the seat of several tubercular ulcers, the mesenteric glands were *not* enlarged, and there was no diarrhœa. He had explained the diarrhœa in the first case by a paralytic pressure upon the sympathetic nerves supplying the intestine, and in support of this view referred to the well-known experiments of Moreau. The present case furnished still further negative evidence in support of this view.

Cystic tumor in the axilla. Presented by Dr. W. W. KEEN.

James McAndrew, æt. 27, Irishman, from Shamokin, miner, admitted to St. Mary's Hospital October 20, 1877. He states that three years ago he first noticed a small lump in the right axilla, which at first grew slowly, but of late quite rapidly. No pain was ever experienced, and the mechanical inconvenience is the only reason for seeking aid. The tumor measured about ten inches across. It extended from high up in the axilla to the ninth rib, and ran under both the pectoralis major and latissimus dorsi. The veins were somewhat enlarged. It was apparently di-

vided into two parts by a marked indentation, but palpation showed that fluctuation not only existed on each side of the apparent division, but from one side to the other. The diagnosis of unilocular cystic tumor was made, and confirmed by obtaining a small part of the fluid with a hypodermic syringe. This fluid was opaline, and by heat and nitric acid the amount of albumen was large. Considerable bleeding followed at the point of puncture, though no visible vein was injured.*

October 24, 1877.—A straight and, in the lying posture, nearly vertical incision, five inches long, was made. After the skin and fascia were divided and the surface of the tumor reached, the knife was laid aside, and the cyst was gradually peeled loose entirely by the fingers, and removed intact, though the walls were very thin. Not a single blood-vessel was ligated. The axillary artery was readily felt at the apex of the wound. Four sutures, adhesive straps, and two compresses completed the dressing. Except a slight tendency to burrowing downwards, readily met by drainage, the man did excellently, and went home with the wound nearly healed, November 7.

The cyst proved to be unilocular, with reddish, thin liquid contents. The sac consisted of a thin, transparent wall, thickened at numerous points by thin plates of almost cartilaginous hardness. The apparent septum was due to a tight band of connective tissue, which constricted it externally.

Report of the Committee on Morbid Growths.—"The fluid contained in the cystic tumor presented by Dr. Keen, upon microscopic examination, is seen to contain compound granular cells, leucocytes, squamous epithelial cells, shreds of fibrin, numerous cholesterin crystals, and amorphous granular matter. By the employment of the nitric-acid test, albumen was found to be present in large amount.

"November 8, 1877."

REVIEWS AND BOOK NOTICES.

A Compend of Diagnosis in Pathological Anatomy, with Directions for Making Post-Mortem Examinations. By Dr. Johannes Orth, First Assistant in Anatomy at the Pathological Institute in Berlin. Translated by Frederick Cheever Shattuck, M.D., and George Krans Sabine, M.D. Revised by Reginald Heber Fitz, M.D., Assistant Professor of Pathological Anatomy in Harvard University, with Numerous Additions from MS. prepared by the Author. 8vo, pp. 440. Hurd & Houghton, New York and Boston, 1878.

Pathological anatomy is, to-day, perhaps the least known of the subjects taught in medicine in this country, for the excellent reason that, except in a single instance,—that of the Harvard Medical School, where the chair of pathological anatomy has for many years shared equal prominence with the others of the curriculum,—until recently no pains have been taken to teach it. Although of fundamental importance, it has been looked upon as one of the *non-practical* branches, and treated accordingly. In the recent efforts to improve medical education it has received its full acknowledgment in the course of the University of Pennsylvania, while the evidences of its growing appreciation in other directions are not wanting. It is not inappropriate, therefore, that this work in its English dress should emanate from the medical school in the United States where pathological anatomy has been longest fostered; and we believe it will do more to promote the proper study of the subject than any book heretofore published in America.

Our columns do not permit a lengthy review of any treatise, and we can only give the objects and scope of the one before us. The original edition was "the result of a practical want, which had long been felt, particularly in Berlin, the seat of the Central Commission for the examination of practitioners of medicine and medical officials." Prepared by Dr. Orth, the assistant for years first of Rindfleisch and now of Virchow, it was undertaken by hands we would naturally expect to be familiar with the practical wants, in this respect, of physicians and medical jurists. Its object is to give comprehensive directions for making post-mortem examinations, for recognizing pathological changes in the *fresh* organs, and for establishing the diagnosis.

To accomplish this, after an introduction containing sections on preliminaries, instruments, and appliances for chemical and microscopical examination, the *examination of the body* is taken up,—first by *inspection*, and second by *internal examination or section*. Under the first head are included inspection of the body as a whole, and of its several parts; inspection of new-born children; and morbid conditions of the skin and subcutaneous cellular tissue, including allusion to the entire category of skin diseases, so called, together with the different varieties of tumors involving these situations. We regret that in these days of exact terminology the old term subcutaneous *cellular* tissue should be used instead of *connective*: the term *cellular* should to-day be applied only to tissues composed purely of cells.

In the second part is included most minutely the method of section and examination of the great cavities of the body and their contents,—the cranium, the thorax, and the abdomen; also of the blood-vessels, bones, and joints. All the different morbid states which affect these localities are described, their distinctive appearances pointed out, and even their microscopic characters detailed with sufficient fulness to complete the diagnosis. As an

* To this bleeding was probably due the different color of the fluid found after the operation.

example of compact distinctive description, we extract that of the rarer forms of brain tumor: "The brain is not a common seat for tumors of any kind, and the rarer forms are *carcinoma* (it is doubtful whether this is ever primary in the brain), *psammoma*, *cholesteatoma*, *melanoma*, and, most rare of all, *osteoma*. The diagnosis of *carcinoma*, as is well known, involves necessarily two things; aggregations of epithelioid cells, and an alveolar stroma of connective tissue. The cells may be obtained by simply scraping the cut surface of the growth, and their integrity be preserved by the addition of a dilute solution of iodine or osmic acid; while the stroma may be demonstrated by brushing a small bit snipped off with the scissors under water. A *psammoma* is easily recognized by its sandy bodies, a *cholesteatoma* by its pearly lustre, a *melanoma* by its color. The sandy bodies,—lime salts,—when placed under the microscope, are black by transmitted light, and are readily dissolved by hydrochloric acid; the pearly lustre results from delicate and closely aggregated glistening scales; while the cells of the melanoma contain brown or black pigment."

It is not pretended to give the complete histology of the morbid conditions described, only the prominent microscopic features; but no pathological product likely to be met in many years' experience in the post-mortem room seems to have been overlooked. In this respect, therefore, the work is an admirable complement to Rindfleisch's Pathological Histology; and the two volumes form a complete guide- and reference-book to the student of pathological anatomy. Both should be in the hands of every student and physician.

If we have any criticism to make, it is that some of the directions in the steps of the post-mortem examination are, possibly, too minute,—such as directions as to whether the right hand or the left should be used, etc.: these had possibly better be left to the convenience of the operator. Again, the disarticulation of the clavicles from the manubrium is not a difficult operation; but we are told it is to be done by "semilunar incision with the convexity directed inwards, and in the latter part of the incision the *handle of the knife is to be somewhat depressed backwards*, to avoid the lower and inner prominence of the articular surface of the clavicles." We confess we are not positive that we interpret aright the latter part of this direction. These are, however, trifles, and do not impair the rare excellence of the work.

The part of the translators is well done, and the teaching and working members of the profession are alike indebted to Dr. Fitz for making the volume available to them. J. T.

DISTEMPER.—Coffee and sweet milk have been recommended in a late meeting of the Scottish Veterinary Medical Society as a cure for distemper in dogs.

GLEANINGS FROM EXCHANGES.

HYDROPHOBIA (*The Lancet*, October 20, 1877).—Dr. Alfred Sinders believes that we should modify our old ideas regarding the etiology of hydrophobia by following out the line of thought suggested by one or more of the following speculative probabilities:

1. That some other diseased condition in the dog than that of rabies may render the saliva poisonous, and capable of originating the malady. 2. That a temporary toxic state of the saliva may be induced by feeding on putrid flesh. 3. That the suppression of some other secretion may cause the determination of poisonous elements to the salivary glands. It is a well-known fact that the secretion peculiar to the anal glands of the black skunk of America is suppressed during rabies. 4. That in certain constitutions there may exist susceptibilities, either temporary or permanent, upon which the saliva, even in its normal condition, may act as a poison; and that its virulence may be determined by the febrile state accompanying a variety of dog ailments, not excluding the *æstus veneris*. 5. That the saliva may act as a *catalytic*, determining the formation of a blood-poison by the combination of elements it meets with in the blood, and remaining inert in the absence of such elements. This would account for the escape of so large a percentage of those bitten. 6. That emotional excitement may produce a temporary toxic condition of the saliva. We have affirmative evidence in this direction in the well-known influence of passion on the milk of the human female, and we know how marked is the influence of emotion on the secretions of the liver, the intestines, and the mouth.

TOTAL ABSTINENCE.—Dr. Brudenell Carter strongly opposes total abstinence, and states that at three separate periods of his life he has tried abstaining from alcohol for three or four months, with the uniform result of a distinct deterioration of his health and working-power. He further states that he has seen life maintained for several months on alcoholic drinks alone; also that the writings of the total abstainers are sufficient evidence to his mind that in most cases their cerebral centres are not in a good state of vigor.

ASPIRATION IN ABSCESS OF THE LIVER.—Dr. Jas. H. Ball reports (*London Lancet*, December 1, 1877) with much detail the case of W. H., who returned early in July to England from Burmah suffering with a liver complaint which had commenced the previous May. He had in former years suffered from two somewhat similar attacks. His symptoms when first seen, July 10, are reported as follows:

"He came under my observation on July 10, having taken up his residence in the south of London. His state at that time was as follows. Thin. Complexion very sallow, slight icteric tint of sclerotic. Tongue

clean. Appetite fairly good. Has a short, dry cough. Breath-sounds healthy over left chest; on the right side very weak below angle of scapula behind. Heart's apex-beat in normal position sounds healthy. The right hypochondriac region is more prominent than the left; there is a marked sense of resistance to the hand placed on that region. Absolute dulness commences on the right side in front in the fifth interspace, in the axilla on the seventh rib, at the back on the tenth rib. There is no dulness below the costal margin. I cannot feel the liver below the ribs. There is a very tender spot in the epigastrium to the right of the middle line, and another almost equally tender point in the axilla in the eighth interspace. There is slight œdema of the skin over the fifth interspace outside the nipple-line. He has occasional shooting pains in the epigastric and right hypochondriac regions. Laughing and coughing cause sharp pain in the same parts. Urine free from albumen and bile-pigment. Rigors, fever, sweats, were after this rapidly developed, and both local and general symptoms grew worse until July 22, when aspiration was performed. A No. 3 needle was inserted at a point in the eighth interspace at the back part of the axilla, three inches and a half below and four inches and a half outside the nipple, to a depth of two inches and a quarter, and in a somewhat forward direction. About three-quarters of an inch after insertion a feeling was experienced of the needle having entered a cavity. On aspiration, pus immediately made its appearance. At first it was of a chocolate color, but afterwards it assumed a redder tinge. When the pus began to come slowly, slight movement of the point of the needle caused it to come more freely. The total quantity of matter drawn off was thirty-nine ounces. It was perfectly free from offensive smell. A broad bandage was applied round the body, and two grains of opium administered. 9 P.M., temperature 98.4°; pulse 82; free from pain.

At first fever, local pain, and other symptoms were relieved, but by September 1 they had again become severe, and it was decided to introduce a trocar and put a drainage-tube in. The patient thought he could bear the operation without an anæsthetic. A medium-sized trocar, smeared with carbolized oil, was inserted in the eighth interspace, just in front of the former seat of puncture, in a somewhat forward direction. It was inserted to its full extent. The abscess was, however, missed, owing probably to its having receded in position since the evacuation of its contents. Nothing but a few drops of blood escaped. The trocar was withdrawn, and a pad of lint applied to the wound. Three grains of opium were administered. In the evening he was free from pain.

On the following day he was almost free from pain and tenderness, and felt, on the whole, relieved by the puncture. He could draw a long breath more freely. His abdomen was much distended with flatulence, but was not tender. Evening temperature 101.8°.

On September 5 aspiration was again attempted. A No. 3 needle was introduced close to the seat of the first puncture, and in a forward direction. On aspiration no pus came. The needle was partly withdrawn, and reintroduced in a backward direction, when it was felt free in a cavity, and twelve and a half ounces of a deep chocolate-brown very thick pus were obtained. After standing a little while the matter withdrawn coagulated into a solid clot, the consistence of blood-clot. 10 P.M., temperature 97.3°; pulse 80. Is free from pain.

From this time forward improvement was steady. No medicine was given except quinine and cod-liver oil. By November 2 no local symptoms whatever could be detected, and the general health seemed perfect.

MISCELLANY.

PHYSIOLOGICAL LABORATORY AT BERLIN.—The new physiological laboratory recently opened in Berlin, under the charge of Professor Bois-Reymond, is one of the most important public buildings in the city. The principal entrance, in the Ufferstrasse, leads to a spacious vestibule, from which iron stairs lead to the large lecture-theatre. Not far from this, on the first story, are a smaller lecture-room and several rooms for instruments, preparations, etc. In the second floor are the laboratories for electricity, acoustics, optics, etc.; and in the attic are a photographic room and several rooms for optical purposes. The apartments of the assistants, the library, and various laboratories, are on the ground-floor. The large auditorium is lighted by means of large windows, which can be darkened at any moment, when desired, by means of Venetian blinds. The rooms in general are warmed by heated air, but in some there is an arrangement for heating with water, so as to maintain an equal temperature. The ventilation is effected by means of a steam-engine on the ground floor.

THE doctor who signed the certificate of a woman who was recently buried alive in Naples, as well as the magistrate who authorized the interment, has been sentenced to three months' imprisonment for involuntary manslaughter.

DR EDWARD WARREN-BEY writes us from Paris that he has felt himself constrained to make no selections of surgeons for the Turkish army, as he had been requested to do by the Ottoman minister; and that he advises those who have applied to him for positions to abandon the idea of entering a foreign service

at the present moment. For the sake of those of our readers who may visit Paris the coming summer, we would state that Dr. Warren's address is now No. 11 Rue Neuve des Capucines.

FATAL EXPLOSION WHILST MAKING OXYGEN.—Recently, at Moira, Ireland, a schoolmaster desiring to make oxygen put two pounds of potassium chlorate and one of manganese peroxide in an iron bottle, and put the whole in a hot stove. Result: stove blown all to pieces, one boy killed, and two injured.

NOTWITHSTANDING the preliminary examination, the first-year medical class of Harvard is this year 114, against 90 last year,—a gain of 24. The whole class for '77 and '78 is 230.

NOTES AND QUERIES.

THE following extracts from a communication sent by Dr. Polk to the *Times* are here printed because it is desired to do full justice to every one. The editor of the *Times* cannot take upon himself the decision of either questions of priority or of the professional standing of individuals; it does, however, seem only right to let any individual who has been assailed have opportunity to answer either as to priority of publication or professional standing. ED. P. M. T.

ORGANIC PHOSPHORUS COMPOUNDS.

By CHARLES G. POLK, M.D.

My first notice, in print, that the acid of the brain is hypophosphorous acid was in the *Tennessee Pharmacal Gazette*, November, 1874.

The same fact, however, is noted in my paper "Tabes Pulmonum," written in 1871, rejected by the editor of the *American Journal of Medical Sciences*, but published in the *Cincinnati Lancet and Observer* in 1877.

I am accused of plagiarizing. Without going behind my paper "Tabes Pulmonum," which settles the claims in my favor, I will meet the issue in front of it. I take, for instance, the "Hypophosphite of Oleine and Glycerin." It was an unsuccessful attempt at making a satisfactory compound representing the normal union of hypophosphorous acid with oleine and glycerin as found in the brain.

Now, I am not aware that any one previous to July, 1876, besides myself, had attempted this normal union of hypophosphorous acid with glycerin and oil. Where is their evidence?

Next, the "Hypophosphite of Oleine." In 1876 (October) I published a description of this compound, gave an improved formula, and called the attention of the reader to the fact that Dr. Percy had already published a formula in his "Essay on Phosphorus." (See *Druggists' Circular*, Oct. 1876, page 170.) Now, what author or discoverer would ask more?

As to "Protagon," or a solution of all the phosphorus compounds of the brain, I am not aware that any one had anticipated me in making this pharmaceutical "protagon," or that any one else even claims to have made it before March, 1877, or three months after I had introduced it. If any one had, I demand the evidence.

Instead of trying to steal any one else's preparation, I have had to contend with an attempt to take the manufacture of "protagon" out of my hands.

A preparation resembling mine in appearance, color, taste, and specific gravity, has been extensively advertised, but the original preparation has steadily come into use, and the sales continue to increase. Of this rival I do not complain. I contend that the best preparation will control the market, and that it is highly unprofessional to copyright a therapeutical agent. What say you, Mr. Editor? Is it not in violation of the Code of Ethics to copyright a medicine, or even prescribe one that is copyrighted?

The last charge I will here notice is that my article "Protagon" (*New Remedies*, Nov. 1876) was stolen from the circular wrapper of "Vitalized Phosphates." If any one cares to investigate, he will find this circular contains quotations from my papers "Protagon" and "Hypophosphite of Iron."

2349 CATHARINE STREET, PHILADELPHIA, PA.

PERSONALLY appeared before me, Dr. Charles G. Polk, of 2349 Catharine Street, who, being duly sworn, deposeth:

That he is not the Professor of Surgery in the American University, Eclectic Medical College, or any other institution. That he is not in any manner whatever connected with either of the above institutions. That the chair of Surgery in the Eclectic Medical College was offered to and declined by him about eight months ago, and that since he has not filled or attempted to fill said Chair, nor did he ever deliver any valedictory address at the Commencement exercises of said institution, and never was present in his life at such exercises of the Eclectic Medical College or the American University.

He further deposeth:

That the use of his name in the recent announcement of said Eclectic Medical College is unauthorized and without his consent. That he is observing in every respect, to the best of his knowledge and belief, the Code of Ethics of the American Medical Association, and deporting him as becometh a member of the regular profession.

CHARLES G. POLK, M.D.,
2349 Catharine St., Philadelphia, Pa.

Sworn and subscribed before me, this 4th day of December, 1877.

WM. B. COLLINS,
Magistrate's Court No. 2.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM DECEMBER 16, 1877, TO DECEMBER 29, 1877.

BAILY, J. C., MAJOR AND SURGEON.—Assigned to duty at the Presidio of San Francisco, Cal., and to attend the sick at Point San José. S. O. 158, Division of the Pacific and Department of California, December 12, 1877.

BACHE, D., MAJOR AND SURGEON.—Assigned to duty at Benicia Arsenal, and as Attending Surgeon at Benicia Barracks, California. S. O. 158, c. s., Division of the Pacific and Department of California.

STORROW, S. A., MAJOR AND SURGEON.—Relieved from duty at the Presidio, and to comply with orders from Headquarters of the Army in his case. S. O. 158, c. s., Division of the Pacific and Department of California.

HARTSUFF, A., MAJOR AND SURGEON.—Assigned to temporary duty at Fort Gratiot, Michigan. S. O. 18, Department of the East, December 13, 1877.

WOODHULL, A. A., MAJOR AND SURGEON.—Until further orders, in addition to his present duties, to attend the sick at Angel Island, Cal. S. O. 158, c. s., Division of the Pacific and Department of California.

WATERS, W. E., CAPTAIN AND ASSISTANT-SURGEON.—To proceed to Fort Columbus, N. Y. H., to settle his public business, and on completion thereof report by letter to the Surgeon-General. S. O. 255, A. G. O., December 13, 1877.

BROOKE, JOHN, CAPTAIN AND ASSISTANT-SURGEON.—Assigned to duty as Post Surgeon at Newport Barracks, Kentucky. S. O. 199, Department of the South, December 14, 1877.

SMART, CHARLES, CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for one month. S. O. 260, A. G. O., December 21, 1877.

PHILLIPS, H. J., CAPTAIN AND ASSISTANT-SURGEON.—Relieved from duty in Department of the East, and granted leave of absence for three months, on Surgeon's certificate of disability, from January 1, 1878. S. O. 257, A. G. O., December 18, 1877.

KING, J. H. T., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for one month, on Surgeon's certificate of disability. S. O. 214, Department of Texas, December 19, 1877.

HAVARD, V., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to duty at Fort A. Lincoln, D. T. S. O. 177, Department of Dakota, December 20, 1877.

DAVIS, WM. B., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to duty at Fort Totten, D. T. S. O. 177, c. s., Department of Dakota.

DE GRAW, C. S., CAPTAIN AND ASSISTANT-SURGEON.—His resignation accepted by the President, to take effect January 1, 1878. S. O. 257, A. G. O., December 18, 1877.

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It affords, therefore, the *very best* mode of administering

IRON

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The advantages claimed for this form of Iron are due to the absence of free acid, which is dependent upon the perfect dialysation of the solution. The samples of German, French, and American Liquor Ferri Oxidi Dialys., which we have examined, give acid reaction to test paper. If the dialysation is continued sufficiently long, it should be tasteless and neutral.

Our Dialysed Iron is not a saline compound, and is easily distinguished from Salts of Iron by not giving rise to a blood-red color on the addition of an Alkaline Sulpho-Cyanide, or a blue precipitate with Ferro-Cyanide of Potassium. It does not become cloudy when boiled. When agitated with one part of Alcohol and two parts of Ether (fortior), the Ether layer is not made yellow.

Physicians and Apothecaries will appreciate how important is the fact that, as an antidote for poisoning by Arsenic, Dialysed Iron is quite as efficient as the Hydrated Sesquioxide hitherto the best remedy known in such cases, and has the great advantage of being always ready for immediate use. It will now doubtless be found in every drug store to supply such an emergency.

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Chlorate of Potash is a remedy of acknowledged value in cases of Diphtheritic Sore Throat, and in Inflammation of the Mouth and Throat, induced by a depressed state of the system. In these instances, as in the milder forms of Croup, it has, besides its depurative and detergent effects, a solvent action on the deposits characteristic of these troublesome and dangerous affections. It relieves Hoarseness, and in many cases of Fetid Breath from disordered secretions, it proves an efficient corrective. Its virtues in simple Angina, or ordinary Sore Throat, are recognized by many of the most eminent physicians.

As the taste of this article is not disagreeable, we have prepared it in the form of Compressed Tablets, thus giving the patient the full benefit of its action, undiluted with Sugar, Gum, or other vehicles, which would not only prevent its effects, but which sometimes themselves offend the stomach.

The Lozenges usually contain about twenty five grains of gum and sugar, with two grains of the Chlorate of Potash, while each of these Pills contains simply five grains of the Chlorate, all of which, dissolved in the saliva, acts on the affected mucous membranes.

If allowed to dissolve in the mouth, the topical effect is much more efficient than a saturated solution, as while the solution is but temporary, the tablet really acts as a continuous gargle.

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DIRECTIONS.—Adults should take one every hour or two until relieved, allowing it to dissolve slowly in the mouth. Children, half of one as often.

For Offensive Breath, no remedy will give more certain relief; use one two or three times a day.

For Diphtheria, Croup, and the more serious ailments, the physician should direct.

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The Abdominal Support is a broad morocco leather belt with elastic straps to buckle around the hips, with concave front, so shaped as to hold up the abdomen.

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The cup and stem is suspended to the belt by two soft elastic rubber tubes, which are fastened to the front of the belt by simple loops, pass down through the stem of the cup and up to the back of the belt. These soft rubber tubes being elastic adapt themselves to all the varying positions of the body and perform the service of the ligaments of the womb.

The instrument is very comfortable to the patient, can be removed or replaced by her at will, can be worn at all times, will not interfere with nature's necessities, will not corrode, and is lighter than metal. It will answer for all cases of Anteversion, Retroversion, or any Flexion of the Womb, and is used by the leading physicians with never-failing success even in the most difficult cases.

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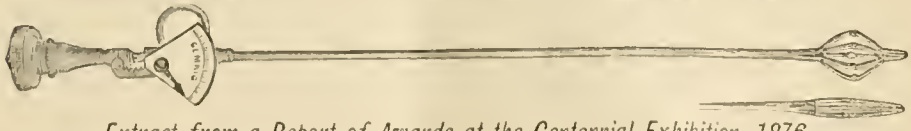

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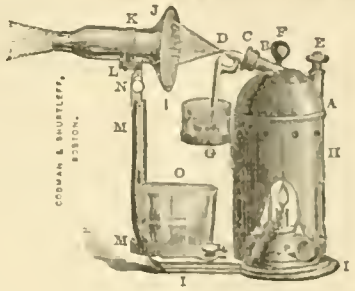

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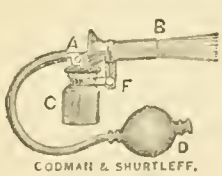

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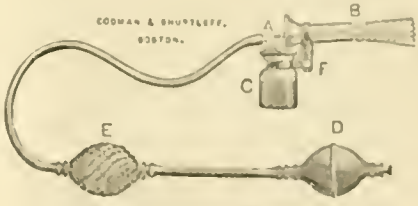

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